Assam down town University

Curriculum and Syllabus

Bachelor of Physiotherapy

OUTCOME BASED EDUCATION FRAMEWORK
CHOICE BASED CREDIT SYSTEM
Version: 2.1

FACULTY OF PHYSIOTHERAPY AND REHABILITATION

July, 2023

PREAMBLE

Assam down town University is a premier higher educational institution which offers Bachelor, Master, and Ph.D. degree Programmes across various faculties. These Programmes, collectively embodies the vision and mission of the university. In keeping with the vision of evolutionary changes taking place in the educational landscape of the country, the university has restructured the course curriculum as per the guidelines of National Education Policy 2020. This document contains outline of teaching and learning framework and complete detailing of the courses. This document is a guidebook for the students to choose desired courses for completing the Programme and to be eligible for the degree. This volume also includes the prescribed literature, study materials, texts, and reference books under different courses as guidance for the students to follow.

Recommended by the Board of Studies (BOS) meeting of the Faculty of Physiotherapy and Rehabilitation held on dated 18/07/2023 and approved by the Emergent Academic Council (AC) meeting held on dated 28/07/2023.

Chairperson, Board of Studies

Member Secretary, Academic Council

Vision

To become a Globally Recognized University from North Eastern Region of India, Dedicated to the Holistic Development of Students and Making Society Better

Missions

1. Creation of curricula that address the local, regional, national, and international needs of graduates, providing them with diverse and well-rounded education.
2. Build a diverse student body from various socio-economic backgrounds, provide exceptional value-based education, and foster holistic personal development, strong academic careers, and confidence.
3. Achieve high placement success by offering students skill-based, innovative education and strong industry connections.
4. Become the premier destination of young people, desirous of becoming future professional leaders through multi disciplinary learning and serving society better.
5. Create a highly inspiring intellectual environment for exceptional learners, empowering them to aspire to join internationally acclaimed institutions and contribute to global efforts in addressing critical issues, such as sustainable development, Climate mitigation and fostering conflict-free global society.
6. To be renowned for creating new knowledge through high quality inter disciplinary research for betterment of society.
7. Become a key hub for the growth and excellence of AdtU's stake holders including educators, researchers and innovators
8. Adapt to the evolving needs and changing realities of our students and community by incorporating national and global perspectives, while ensuring our actions are in harmony with our foundational values and objectives of serving the community.

Programme Details

Programme Overview

Bachelor of Physiotherapy (BPT) is a 4.5 year course including 6 months of internship. Students with a science background can pursue a career in physiotherapy. To practice as a physiotherapist or work professionally in a hospital or clinic, one must have a Bachelor's degree. The course provides students with a fundamental understanding of the human body based on medical sciences and training in therapy procedures and related skills. Course topics include anatomy, physiology, pathology, pharmacology, psychology, medical and surgical conditions, biomechanics, kinesiology, disability prevention, rehabilitation, and others. The course includes practical components, such as an internship where students work under professional supervision at various hospitals and institutions.

Specific Features of the Curriculum

The Bachelor of Physiotherapy curriculum cultivates professional excellence by integrating expertise in musculoskeletal, neurological, cardiorespiratory, and paediatric physiotherapy. Students develop advanced clinical proficiency and empathetic patient care skills, ensuring superior healthcare outcomes. Practical research opportunities enable the development of innovative rehabilitation technologies, methodologies, and protocols, preparing graduates to lead advancements in physiotherapy practice. International competency is fostered through specialized certifications on global platforms, equipping students with interdisciplinary knowledge essential for navigating diverse healthcare environments. This comprehensive approach empowers graduates to excel as proficient, compassionate physiotherapy professionals capable of making significant contributions to global health and rehabilitation**.**

Eligibility Criteria:

Minimum 50% in 10+2 with Physics, Biology & Chemistry. 5% relaxation for SC/ST, EWS, and Specially able candidates.

Programme Educational Objectives (PEO):

PEO-1: Any Physiotherapy Graduates will be well prepared for successful careers as physiotherapists in one or more of the sectors: hospitals, rehabilitation centres, academic institutions, sports clubs, NGOs, government schemes etc.

PEO-2: Physiotherapy graduates will be academically prepared to become licensed physiotherapy practitioners and will contribute effectively to the growth and development of the healthcare profession, and the society at large

PEO-3: The graduates will engage in professional practices to enhance their physiotherapeutic skill and stature, establish physiotherapy clinics or rehabilitation centres, and be successful in higher education if pursued.

I. Programme Specific Outcomes (PSO):

PSO1: Professional Excellence: Exhibit expertise, advanced clinical proficiency, and empathetic patient care attitude across diverse subfields including musculoskeletal, neurological.

PSO2: Practice in Research: Able to develop new rehabilitation technology, methodology or protocol by doing research in physiotherapy. cardio respiratory, and pediatric domains for better healthcare outcomes.

PSO3: International Competency: Demonstrate global professional competencies by attaining interdisciplinary knowledge through specialized certifications offered on international learning platforms.

II. Programme Outcome (PO):

PO1: Physiotherapeutic Knowledge: Apply comprehensive physiotherapeutic understanding and specialized knowledge for analyzing the functional aspects of the human body.

PO2: **Problem Analysis and Modern Approaches:** Assess, analyze and detect complex human dysfunction using suitable diagnostic techniques, and design respective physiotherapeutic solutions applying modern treatment approaches concerning healthcare policies and practices

PO3: Circumstantial Rehabilitation: Implement customized practices and management strategies in varying circumstantial conditions for solving physiotherapeutic problems and better rehabilitative outcomes of clinical practice in the

PO4: **Research-In-Practice:** Exhibit proficiency in utilizing high-quality evidence-based strategies that lead to excellence in professional practice.

PO5: Communication: Communicate effectively with patients/ diverse healthcare teams to comprehend health issues and be able to write effective reports.

PO6: Professional Ethics: Demonstrate commitment to ethical values adhering to the highest standard of integrity and accountability in the profession

PO7: Teamwork and Leadership: Function effectively as an individual or a member/ leader in diverse healthcare settings and teams.

PO8: Lifelong Learning: Ability to work independently and consistently acquire expertise in the continually developing domain of physiotherapeutic treatment methods and technology, while remaining adaptable to the dynamic changes in healthcare within society.

III. Total Credits to be earned: 195

IV. Career Prospects: Bachelor of Physiotherapy offers promising career prospects across various healthcare settings. Graduates can pursue roles as physiotherapists in hospitals, clinics, rehabilitation centers, and sports facilities, where they provide expert treatment for musculoskeletal, neurological, cardiorespiratory, and pediatric conditions. Opportunities exist in specialized areas such as sports medicine, orthopedics, geriatrics, and neurology, with options to work internationally or in interdisciplinary teams. Advancement into leadership positions, research, teaching, or consultancy roles is also feasible with experience and further education. With a growing demand for rehabilitation services globally, Bachelor of Physiotherapy graduates play a crucial role in improving patient outcomes and promoting wellness.

EVALUATION METHODS

The student performance shall be evaluated through In-semester (Sessional) and semester-end examinations. A weightage of 50% or as prescribed by the Programme shall be added to the score of the end-semester examination.

A. INTERNAL ASSESSMENT:

The teacher who offers the course shall be responsible for internal assessment by conducting in-semester (sessional) examination and evaluating the performance of the students pursuing that course. The components for internal assessment are illustrated in the table given below.

SN	Components/ Examinations	Marks Allotted
1.	In-Sem Exam – I (ISE-I) (Written Examination)*	30
2.	In-Sem Exam – II (ISE-II) (Written Examination)*	30
3.	Assignment	10
4.	Presentation (SP)	10
5.	Quiz	5
6.	Class Performance based score*	5

are compulsory

Note: *Total Internal assessment should be out of 40*

INSTRUCTION

1. If a student fails to appear in the any of the component without any valid reason he/she shall be marked zero in that component. However, the course teacher at his discretion may arrange for the missed test on an alternate date for the absentee students after determining ground with genuine/valid reasons for the absent.
2. The report of evaluation of an activity towards the in-semester (sessional) component of a course shall be duly notified by the concerned course teacher within a week of completion.
3. The Programme coordinators should upload the in-semester marks to the ERP and forward acknowledgement of all the courses of the Programme to the Controller of Examinations before the start of the End-semester examination.

B. SEMESTER END EXAMINATION:

Time table for end semester examination is published at least 25 days prior to the start of Examination.

I. Pre-Examination:

Eligibility Criteria for a student to appear in University Examinations:

The student shall only be allowed to appear in a University Examination, if:

i) He/ She is a registered student of the University;

ii) He/ She is of good conduct and character;

iii) He/ She has completed the prescribed Programme of study with minimum percentage of attendance as laid down in the Regulations of the Programme concerned.

Under special cases, a student may be allowed to appear for an examination without being registered in the University but the result of the said student will be kept on hold till the registration of the concerned student is completed.

II. Admit Card:

Admit card for the examination may be downloaded through ERP where the system will generate a Unique ID Cards through online.

The University shall have the right to cancel admission for examination of any candidate on valid grounds.

III. Pattern of Question Papers:

The question paper shall follow the principles of Bloom's Taxonomy.

Table

S. N.	Level	Questions /verbs for test
1	Remember	List, Define, tell, describe, recite, recall, identify, show who, when, where, etc.
2	Understand	Describe, explain, contrast, summarize, differentiate, discuss, etc.
3	Apply	Predict, apply, solve, illustrate, determine, examine, modify
4	Analyse	Classify, outline, categorize, analyze, diagrams, illustrate, infer, etc.
5	Evaluate	Assess, summarize, choose, evaluate, recommend, justify, compare etc.
6	Create	Design, Formulate, Modify, Develop, integrate, etc.

Note: No course is to be evaluated on basis of **all 6 knowledge levels.**

The format of the question paper across all the Programme follow a unique pattern and the total marks is 60

Table 1: Question paper pattern for End semester examination

Sl no	Question pattern	Total marks
1	MCQs (10 Questions)	10
2	2 Marks questions (10 Questions)	20
3	4 Marks questions (5 Questions)	20
4	10 Marks questions (1 Question)	10

IV. Examination Duration:

Each paper of 60 marks shall ordinarily be of two hours duration.

V. Practical Examinations, Viva-Voice etc.:

i) Practical examination shall be conducted in the presence of one external expert and one or more internal examiners.

ii) Viva-Voce, Oral examinations of the Project report, Dissertation etc. shall be undertaken by a Board of Examiners constituted by the respective Dean of Programme with the advice of Supervisor(s).

VI. Procedure of Expulsion:

If any candidate is found to be using any unfair-means during the examination, the invigilator may cease his/her answer sheet and report it directly to the Officer-in-Charge. The Office-in-Charge of the center may take appropriate decisions as per the rules and procedure of the examination. The Officer-in-Charge may allow the students to write the exam with new answer sheet or may expel the student from appearing the paper depending on the nature of unfair-means. In case of Computer based test, the students may be directed to write an apology letter and sign in the prescribe expulsion form. The student may not be allowed to write that examination.

VII. Instruction to the Students:

(i) The students shall not bring to the Examination Hall, any electronic gadget used as a means of communication or record except electronic calculator, if required.

(ii) The students shall not receive any book or printed or hand written or photo copy (Xerox) or blank-paper from any other person while he/she is in the examination-room or in laboratory or in any other place to which he/she is allowed to have access during course of examination.

(iii) The students shall not communicate with any other candidate in the examination room or with any other person in and outside the examination-room.

(iv) The students shall not see, read or copy anything written by any other candidate, nor shall he/she knowingly or negligently permit any other candidate to see, read or copy anything written by him/her or conveyed by him/her.

(v) The students shall not write anything on the Question Paper or in other paper or materials during the examination, or pass any kind of paper to any other candidate in the examination-room, or to any person outside the room.

(vi) The students shall not disclose his/her identity to the examiner by writing his/her name or putting any sign / symbol in any part of his answer-script.

(vii) The students shall not use any abusive language or write any objectionable remark or make any appeal to examiner by writing in any part of his answer-script.

(viii) The students shall not detach any page from the answer-script or insert any authorized or unauthorized loose sheet into it. He /she shall also not insert any other answer-script / loose sheet by removing the pins of the origin answer-scripts and re-fixing it.

(ix) The students shall not resort to any disorderly conduct inside the examination-room or misbehave with the invigilator or any other examination official.

VIII. Provision for an Amanuensis (writer):

(i) A candidate may be provided with an Amanuensis (writer) to write down on dictation on his / her behalf on ground of his / her physical disability to write down by himself / herself due to accident or any other reason. The amanuensis may be provided till he / she recovers from the physical disability. The physical disability to write down by himself / herself must be supported by Medical Certificate from a competent Medical Officer.

(ii) The qualifications of the amanuensis so provided must not be equal or higher than that of the candidate. This is also to be supported by Certificate from the Faculty of Study where the Amanuensis is provided.

(iii) Such candidates are to be accommodated in a separate room under the supervision of an invigilator so that the fellow candidates are not disturbed in the process.

C. Credit Point:

It is the product of grade point and number of credits for a course, thus, CP = GP x CR

i. Credit:

A unit by which the course work is measured. It determines the number of hours of instructions required per week. 'Credit' refers to the weightage given to a course, usually in terms of the number of instructional hours per week assigned to it. Credits assigned for a single course always pay attention to how many hours it would take for an average learner to complete a single course successfully.

ii. Grade Point:

Grade Point is a numerical weight allotted to each Grade Letter on a 10-point scale.

iii. Letter Grade:

Letter Grade is an index of the performance of students in a said paper of a particular course. Grades are denoted by letters O, A+, A, B+, B, C, P, F and Abs. Student obtaining Grade F / Grade Abs shall be considered failed/ absent and, will be required to appear in the subsequent ESE. The UGC recommends a 10-point grading system with the following (Table: 1) Letter Grades:

(i) A Letter Grade shall signify the level of qualitative/quantitative academic achievement of a student in a Course, while the Grade Point shall indicate the numerical weight of the Letter Grade on a 10-point scale.

(ii) There shall be 08 (eight) Letter Grades bearing specific Grade Points as listed in Table 1, where the Letter Grades 'O' to 'P' shall indicate successful completion of a course.

(iii) Apart from the 08 (eight) regular Letter Grades listed in Table 1, there shall be 03 (three) additional Letter Grades, which shall be awarded if a Course is withdrawn or spanned over the next Semester or remains incomplete as stated in Table 2.

Table 2: Letter Grades and Grade Points

Letter Grade	Grade Points	Description
O	10	Outstanding
A+	9	Excellent
A	8	Very Good
B+	7	Good
B	6	Above Average
C	5	Average
P	4	Pass
F	0	Fail
Abs	0	Absent
UFM	0	Unfair Means

iv. Grade Point Average:

a. SGPA (Semester Grade Point Average)

The SGPA of a student in a Semester shall be the weighted average of the Grade Points secured by the student in all the Credit Courses (both Core and Elective Courses) he/she registered in that Semester, irrespective of whether he/she could or could not complete the Courses. More specifically, the calculation of SGPA shall take into account the Courses graded with Letter Grades 'O' to 'F' as given in Table 1.

$$\text{SGPA} = \frac{\Sigma_{i=1}^{n} C_i G_i}{\Sigma_{i=1}^{n} C_i} \qquad (1.1)$$

The SGPA of a student in a Semester shall be calculated on a 10-point scale using Equation (1.1) up to two decimal places, where n is the total number of Credit Courses registered by the student in that Semester, Gi is the Grade Point secured in the i^{th} registered Course and Ci is the Credit (weight) of that Course.

b. CGPA (Cumulative Grade Point Average)

(i) The CGPA of a student in a Semester of a Programme shall be the accumulated weighted average of the Grade Points secured by the student in all the Credit Courses (both Core and Elective Courses) he/she registered and successfully completed so far starting from the enrollment in the Programme. In other words,taking into account all the Courses graded with 'O' to 'P' as given in Table 1.1, generally the CGPA of a student shall be calculated starting from the first Semester of his/her enrolled Programme, while the CGPA of a lateral-entry student shall be calculated starting from the Semester of his/her enrollment.

(ii) The CGPA of a student in a Semester shall be calculated on a 10-point scale using Equation (1.2) up to two decimal places, where N is the total number of Credit Courses registered and successfully completed so far by the student, Gi is the Grade Point secured in the ith completed Course and Ci is the Credit (weight)of that Course.

$$\text{CGPA} = \frac{\Sigma_{i=1}^{N} C_i G_i}{\Sigma_{i=1}^{N} C_i} \qquad (1.2)$$

(iii) The CGPA shall be convertible into equivalent percentage of marks using Equation Conversion of CGPA to percentage marks: = CGPA*10

D. Post-Examination

i. Transcript or Grade Card or Certificate:

A marking certificate shall be issued to all the registered students after every Semester. The Semester mark sheet will display the course details (code, title, number of credits, grade secured) along with total credit earned in that Semester.

ii. Grievance Readdress Mechanism:

Students with any dissatisfaction or grievance regarding the marks awarded in any of the Papers / Courses may appeal to the Controller of Examinations for remedial action such as Re-evaluation within 10 days of the declaration of result.

(i) A student has options to appeal for re-evaluation of his /her answer script to the Controller of Examination.

(ii) Application for re-evaluation / re-scrutiny of answer scripts shall be made in the definite proforma available with the Examination Office through the head of the respective departments within 10 days of declaration of the results of the respective examinations.

(iii) The Controller of Examination may appoint an examiner for re-evaluation and will consider and recognize the evaluation done by a University appointed examiner.

(iv) There shall be no provision for re-evaluation of the Practical Papers, Project Work, and Dissertation etc. However, the students fail in practical examination or viva voce and wish to appear again may apply to be evaluated can do so with the next schedule.

(v) After screening the application for re-evaluation, the CoE may send the answer scripts of the student to the examiners appointed by the CoE with the approval of Vice Chancellor.

(vi) The marks/grades achieved by the students after the re-evaluation shall be final and binding.

(vii) Fresh Marks – sheets / Grade Card shall be issued only if the candidate secures pass marks / passing grade in the re-evaluated paper.

(viii) Revaluation of answer scripts shall be deemed to be an additional facility provided to the students with a view to improving upon their results at the preceding examination result for any reason whatsoever shall not confer any right upon them for admission to next higher class which matters always be regulated in accordance with the relevant rules or regulations framed by the University.

(ix) If as a result of revaluation of the candidate attracts the provision of condonation of deficiency, the same may be applied to his/her only for fresh attempt.

INSTRUCTION TO TEACHERS AND STUDENTS

(Teaching and Learning Methods)

In all the courses the teacher has to select topics for teacher-method which should not be less than 20 percent. The approach will be direct classroom teaching through a series of lectures delivering concepts using ITC facilities, white or blackboard. Notes may also be circulated to the students; however, the students are to be involved in the preparation of the notes. The teacher will be responsible for selecting the best note for circulation. The teacher-centric methodology has recently fallen out of favour because this strategy for teaching is seen to favour passive students.

1. Student- centric / Constructivist Approach:

The topics of the courses may be selected at the start of the class and assigned one topic to each of the students for studying by themselves, prepare presentations, notes, etc., and present at respective class time after consultation and discussion with the course teachers. The teacher facilitates the learning of the students by guiding and providing input and explaining concepts. 60 percent of the course contents may be selected for this purpose. To avoid behaviour problems, teachers must lay a lot of groundwork in student-centric classrooms. Typically, it involves instilling a sense of responsibility in students. In addition, students must learn internal motivation.

a. Project-Based Learning: The teacher may select 5 percent of topics for the purpose and may conduct visits to the laboratory for experiments or field surveys. The selection of the topic may be done considering the available facility for the purpose. However, in the final semester of each of the Programme the student has to undergo project-based learning at least 4 months duration. This approach will help the student to think critically, evaluate, analyze, make decisions, collaborate, and more.

b. Inquiry-Based Learning: The teacher/ students are supposed to list at least five questions in each contact hour and student solve these question or search for answer which becomes the home work for the students "question-driven" learning approach. The teacher may look for the correctness of the solution or the best possible answer and discuss in the successive class. This will help in the preparation for various competitive examination and develop a habit for search for solutions.

c. Flipped Classroom: About 10 percent of the course content has to be completed by this method. In this approach the students are asked to watch video or lecture prepared by the teacher or any video available (relevant to the course). A set of questions may be given to the students for searching answers by the students. The idea is that students should have more time in-classroom focusing on achieving these higher levels of thinking and learning. The Flipped classroom is also an acronym. The letters FLIP represent the four pillars included in this type of learning: Flexible environment, Learning culture shift, Intentional content, and Professional educator. As you can see, the second pillar refers to a culture shift from the traditional approach where students are more passive to an approach where students are active participants. As a result, this approach is also a student-centric teaching method.

d. Cooperative Learning: The remaining five percent has to be completed by cooperative learning approach. In this approach, the students are allotted problems. During library hours the students along with the teacher visitthe library and search for probable solutions for the assigned problem. The same has to be done in groups so that the students discuss among themselves for the appropriate answers. Essentially, cooperative learning believes that social

interactions can improve learning. In addition, the approach recreates real-world work situations in which collaboration and cooperation are required.

The percentage categorization for the completion of a theory course

Teacher-centric or Direct Classroom Teaching: Delivery by series of lectures	20%
Student-centric Approach, Students present and deliver lectures in the presence of teacher and supervised by teacher	60%
Students visit fields or perform experiments or teachers perform demonstration	05%
Flipped Classroom approach	10%
Cooperative learning approach	05%

The inquiry-based approach has to be followed in all the classes

The teacher has to distribute the topics to be considered for teaching by the above-mentioned approaches and prepare a lesson plan for execution and maintain a file.

Breakdown of Credits

SL.No	Category		Total number of Credits
1	University Core (UC)	Skill Enhancement Course (SEC)	0
		Ability Enhancement Course (AEC)	0
		Field Training	0
		Discipline Specific Elective (DSE)	0
		Value Added Course (VAC)	0
2	University Elective	Multi Disciplinary Course (MDC)	09
		Value Added Course (VAC)	0
3	Programme Core (PC)	Discipline Specific Core (DSC)	119
		Field Training	6
		Research/Industry Internship	12
		Summer Internship	0
4	Programme Elective	Discipline Specific Elective (DSE)	0
		Value Added Course (VAC)	18
5	Faculty Core (FC)	Skill Enhancement Course (SEC)	15
		Ability Enhancement Course (AEC)	16
	Total number of credit		**195**

Breakdown by categories of courses

Sl no	Category	Credits	%
1	Physiotherapy and Rehabilitation	169	86.66
2	Paramedical Sciences	05	2.56
3	Science	06	3.07
4	Engineering	01	0.51
5	Commerce and Management	02	1.02
6	Humanities and Social Sciences	08	4.10
7	Pharmacy	04	2.05
Total		**195**	**100**

SEMESTER WISE COURSE DISTRIBUTION

Semester I														
S. N.	**Course Code**	**Course Title**	**Course Category**	**Engagement**							**Maximum Marks for**			
				L	**T**	**P**	**S**	**R**	**O**	**C**	**IA ***	**SEE ***	**PE ***	**Total**
1.	23BPTO111R	Biomechanics Of Human Motion	SEC	3	0	2	0	0	0	4	40	60	100	200
2	23BPTO112R	Human Anatomy	DSC (Major)	3	0	4	0	0	0	5	40	60	100	200
3	23BPTO113R	Human Physiology	DSC (Minor)	3	0	4	0	0	0	5	40	60	100	200
4	23BPTO114R	Biochemistry	DSC (Minor)	2	0	0	0	0	0	2	40	60	0	100
5	23BPTO115R	Psychology & Sociology	MDC	2	0	0	0	0	0	2	40	60	0	100
6	23UBPD111R	PDPI- BASIC COMMUNICATIVE ENGLISH	AEC	0	0	2	0	0	0	1	0	0	100	100
7	23UBEC111/ 23UBCC121	Extra-Curricular/Co-Curricular	SEC	0	0	0	4	0	0	1	0	0	100	100
8	23BPTOMC01/02/ 03	MOOCS	VAC	0	0	0	0	0	0	1	0	100	0	100
9	23BPTFT116	FIELD VISIT	FIELD TRAINING	0	0	0	0	0	8	1	0	0	100	100
Total				**13**	**0**	**12**	**4**	**0**	**8**	**22**	**200**	**400**	**600**	**1200**

Semester II														
S. No.	**Course Code**	**Course Title**	**Course Category**	**Engagement**							**Maximum Marks for**			
				L	**T**	**P**	**S**	**R**	**O**	**C**	**IA***	**SEE***	**PE***	**Total**
1.	23BPTO121R	Biomechanics Of Human Motion	SEC	3	0	2	0	0	0	4	40	60	100	200
2	23BPTO122R	Human Anatomy	DSC (Major)	3	0	4	0	0	0	5	40	60	100	200
3	23BPTO123R	Human Physiology	DSC (Minor)	3	0	4	0	0	0	5	40	60	100	200
4	23BPTO124R	Biochemistry	DSC (Minor)	2	0	0	0	0	0	2	40	60	0	100
5	23BPTO125R	Psychology & Sociology	MDC	2	0	0	0	0	0	2	40	60	0	100
6	23UBPD122R	Functional English (Communicative English & Soft Skills)	AEC	0	0	2	0	0	0	1	0	0	100	100
7	23UBCC121/23UBEC121	Co-Curricular/ Extra-Curricular	SEC	0	0	0	4	0	0	1	0	0	100	100
8	23BPTO126R	Environmental Sciences	VAC	2	0	0	0	0	0	2	40	60	0	100
9	23BPTOMC04/05/06	MOOC	VAC	0	0	0	0	0	0	1	0	100	0	100
10	23BPTO127R	Field Training	Field Training	0	0	0	0	0	0	1	0	0	100	100
Total				**15**	**0**	**12**	**4**	**0**	**8**	**24**	**240**	**460**	**600**	**1300**

Semester III														
S. No.	Course Code	Course Title	Course Category	Engagement							Maximum Marks for			
				L	T	P	S	R	O	C	IA *	SEE *	PE *	Total
1.	23BPTO211R	Exercise Therapy	DSC (Major)	3	0	6	0	0	0	6	40	60	100	200
2	23BPTO212R	Electro Therapy	DSC (Major)	3	0	6	0	0	0	6	40	60	100	200
3	23BPTO213R	Pharmacology	DSC (Minor)	2	0	0	0	0	0	2	40	60	0	100
4	23BPTO214R	Microbiology & Pathology	DSC (Minor)	4	0	0	0	0	0	4	40	60	0	100
5	23BPTO215R	Biostatics & Research Methodology	AEC	4	0	0	0	0	0	4	40	60	0	100
6	23UBPD212R	PDP III- English Language For Excellence (Communicative English &Soft Skills)	AEC	0	0	2	0	0	0	1	0	0	100	100
7	23UBCC211/23UBEC211	Co-Curricular/ Extra-Curricular	SEC	0	0	0	4	0	0	1	0	0	100	100
8	23BPTOGE01/02	Generic/Open Elective	AEC	0	0	0	0	0	0	2	0	100	0	100
9	23BPTOMC07/08/09	MOOC	VAC	0	0	0	0	0	0	1	0	100	0	100
10	23UULS201R	Basic Acclimatization Skills (BAS)	MDC	0	0	2	0	0	0	1	0	0	100	100
11	23BPTO216R	Field Training	Field Training	0	0	0	0	0	8	1	0	0	100	100
12	23UCDL201R	Digital Literacy (digital proficiency)	VAC	0	0	2	0	0	0	1	0	0	100	100
Total				**16**	**0**	**18**	**4**	**0**	**8**	**30**	**200**	**500**	**700**	**1400**

Semester IV														
S. N.	Course Code	Course Title	Course Category	Engagement							Maximum Marks for			
				L	T	P	S	R	O	C	IA *	SEE *	PE *	Total
1.	23BPTO221R	Exercise Therapy	DSC (Major)	3	0	6	0	0	0	6	40	60	100	200
2	23BPTO222R	Electrotherapy	DSC (Major)	3	0	6	0	0	0	6	40	60	100	200
3	23BPTO223R	Pharmacology	DSC (Minor)	2	0	0	0	0	0	2	40	60	0	100
4	23BPTO224R	Clinical Orthopaedics And Traumatology	DSC (Major)	3	0	0	0	0	0	3	40	60	0	100
5	23BPTO225R	Clinical Neurology And Neurosurgery	DSC (Major)	3	0	0	0	0	0	3	40	60	0	100
6	23UBPD222R	PDPIV English For Employability (Communicative English & Soft Skills)	AEC	0	0	2	0	0	0	1	0	0	100	100
7	23UBCC211/23UBEC211	Co-Curricular / Extra-Curricular	SEC	0	0	0	4	0	0	1	0	0	100	100
8	23BPTOGE01/02	Generic/Open Elective	AEC	0	0	0	0	0	0	2	0	100	0	100
9	23UUFL201R	Financial Literacy (Introduction to Financial Budgeting and Planning)	MDC	0	0	2	0	0	0	1	0	0	100	100
10	23BPTOVAC01	Indian Heritage	VAC	0	0	0	0	0	0	1	0	100	0	100
11	23UULS201R	Basic Life Saving Skills (BLSS)	SEC	0	0	2	0	0	0	1	0	0	100	100
12	23BPTO226R	Field Training	Field Training	0	0	0	0	0	8	1	0	0	100	100
Total				**14**	**0**	**18**	**4**	**0**	**8**	**28**	**200**	**500**	**700**	**1400**

Semester V														
S. N.	**Course Code**	**Course Title**	**Course Category**	**Engagement**							**Maximum Marks for**			
				L	**T**	**P**	**S**	**R**	**O**	**C**	**IA ***	**SEE ***	**PE ***	**Total**
1.	23BPTO311R	Clinical Orthopaedics And Traumatology	DSC (Major)	3	0	0	0	0	0	3	40	60	0	100
2	23BPTO312R	Clinical Neurology And Neurosurgery	DSC (Minor)	3	0	0	0	0	0	3	40	60	0	100
3	23BPTO313R	General Medicine And General Surgery	DSC (Major)	4	0	0	0	0	0	4	40	60	0	100
4	23BPTO314R	PT In Orthopaedics Conditions	DSC (Major)	2	0	4	0	0	0	4	40	60	100	200
5	23BPTO315R	Pt In Neurological Conditions	DSC (Major)	2	0	4	0	0	0	4	40	60	100	200
6	23BPTO316R	Community Medicine	MDC	3	0	0	0	0	0	3	40	60	0	100
7	23BPTOGE03/04	Generic/Open/ University Elective	AEC	0	0	0	0	0	0	2	0	100	0	100
8	23UBCC311/23UBEC311	Co-Curricular / Extra-Curricular	SEC	0	0	0	4	0	0	1	0	0	100	100
9	23BPTOMC13/14/15	MOOC	VAC	0	0	0	0	0	0	1	0	0	100	100
10	23BPTO317R	Field Training	FIELD TRAINING	0	0	0	0	0	8	1	0	0	100	100
Total				**17**	**0**	**8**	**4**	**0**	**8**	**26**	**240**	**560**	**400**	**1200**

Semester VI														
S. N.	**Course Code**	**Course Title**	**Course Category**	**Engagement**							**Maximum Marks for**			
				L	**T**	**P**	**S**	**R**	**O**	**C**	**IA ***	**SEE ***	**PE ***	**Total**
1	23BPTO321R	General Medicine And General Surgery	DSC (Major)	3	0	0	0	0	0	3	40	60	0	100
2	23BPTO322R	PT In Orthopaedics Conditions	DSC (Major)	2	0	4	0	0	0	4	40	60	100	200
3	23BPTO323R	PT in Neurological Conditions	DSC (Major)	2	0	4	0	0	0	4	40	60	100	200
4	23BPTO324R	PT in Cardiothoracic Conditions And General Conditions	DSC (Major)	2	0	4	0	0	0	4	40	60	100	200
5	23BPTO325R	Diagnostic Imaging For Physiotherapist	DSC (Minor)	4	0	0	0	0	0	4	40	60	0	100
6	23UBCC321/23UBEC321	Co-Curricular/ Extra-Curricular	SEC	0	0	0	4	0	0	1	0	0	100	100
7	23BPTOGE03/04	Generic/ Open/ University Elective	AEC	0	0	0	0	0	0	2	0	100	0	100
8	23BPTOMC16/17/18	MOOC	VAC	0	0	0	0	0	0	2	0	100	0	100
9	23BPTO327R	Field Training	FIELD TRAINING	0	0	0	0	0	8	1	0	0	100	100
Total				**13**	**0**	**12**	**4**	**0**	**8**	**25**	**200**	**500**	**500**	**1200**

Semester VII														
S. N.	Course Code	Course Title	Course Category	Engagement							Maximum Marks for			
				L	T	P	S	R	O	C	IA *	SEE *	PE *	Total
1	23BPTO411R	Clinical posting	Research/ industry Internship	0	0	0	0	72	0	12	0	0	100	100
2	23BPTOMC19/20/ 21	MOOC/Online	VAC	0	0	0	0	0	0	2	0	100	0	100
3	23BPTO412R	Digital Tech (Coursera)	VAC	0	0	0	0	0	0	2	0	100	0	100
Total				**0**	**0**	**0**	**0**	**72**	**0**	**16**	**0**	**200**	**100**	**300**

Semester VIII														
S. N.	Course Code	Course Title	Course Category	Engagement							Maximum Marks for			
				L	T	P	S	R	O	C	IA*	SEE*	PE*	Total
1	23BPTO421R	PT in OBG And General Surgery	DSC (Major)	4	0	4	0	0	0	6	40	60	100	200
2	23BPTO422R	Community Based Rehabilitation	DSC (Major)	4	0	4	0	0	0	6	40	60	100	200
3	23BPTO423R	PT in Cardiothoracic Conditions And General Conditions	DSC (Major)	2	0	4	0	0	0	4	40	60	100	200
4	23BPTO424R	Allied Therapeutics And Sports Physiotherapy	DSC (Minor)	4	0	0	0	0	0	4	40	60	0	100
5	23BPTO425R	Digital Tech (Coursera)	VAC	0	0	0	0	0	0	2	0	100	0	100
6	23BPTOMC22/23/ 24	MOOC/Online	VAC	0	0	0	0	0	0	2	0	100	0	100
Total				**14**	**0**	**12**	**0**	**0**	**0**	**24**	**160**	**440**	**300**	**900**

***IA: Internal Assessment, SEE: Semester End Examination,**
PE: Practical Examination

SEMESTER – I									
Course Title	**BIOMECHANICS OF HUMAN MOTION**								
Course code	**23BPTO111R**	**Total Credits: 4**	**L**	**T**	**P**	**S**	**R**	**O/F**	**C**
		Total Hours: 45T+30P	**3**	**0**	**2**	**0**	**0**	**0**	**4**
Pre-Requisite	**NIL**	**CO-REQUISITE**	**Human Anatomy and Human Physiology**						
Programme	**Bachelor in Physiotherapy**								
Semester	**1st**								
Course Objectives	1.To introduce the students to the concepts related to basic Joint Structure and Function, Muscle Structure and Function, Biomechanics of Shoulder Complex, Biomechanics of Elbow Complex, Biomechanics of the Wrist and Hand Complex, Biomechanics of Temporomandibular Joint**.** 2. To introduce the students to the mechanical aspects of the human body. 3. To make the students able to identify the normal movements of the body and recognize the abnormalities								
CO1	Apprehend the knowledge of kinetics and kinematics of the human body.								
CO2	Identify the movements of all the joints of the body and recognize the abnormalities present and thereby understand the patho-mechanics related to the joints.								
CO3	Identify the joints and muscle and demonstrate the various mechanisms causing the movement in different joints.								
CO4	Comprehend the concept of forces acting at various joints, muscle and the importance of joint work in activities of daily living.								
CO5	Explain the anatomical axis and planes and learn thoroughly about each movement occurring at all the joints of the human body.								

Unit-No.	Content	Contact Hour	Learning Outcome	KL
I	**Basic Concepts of Biomechanics:** • **Kinematics:** Description of Motion, Types of Motion, Location of Motion, Direction and Magnitude of Motion • **Kinetics:** Analysis of Forces, Definition, Force of Gravity, Reaction of Forces, Equilibrium, Objects in Motion, Force of Friction, Concurrent Force Systems, Parallel Force Systems, Work, Moment arm of Force, Force Components, Equilibrium of Levers	8 Hrs	To have knowledge about the kinetics and kinematics of human body and to understand how physics are applied to the human body.	1,2
II	**Joint Structure and Function**: Joint Design, Specific connective tissue structures, General Properties of Connective Tissue, Human Joint Design, Kinematic Chains, Arthrokinematics and Osteokinematics.	8 Hrs	To learn about the various joint structures, connective tissues and kinematics.	1,2
III	**Muscle Structure and Function**: Mobility and Stability Functions of Muscles, Elements of Muscle Structure, Muscle Function, Effects of Immobilization, Injury and Aging on Muscle Tissues	8 Hrs	To gather information about the muscle structure, function and effects of injury and aging on muscle tissues.	1,2
IV	• **Biomechanics of Shoulder Complex:** Components of shoulder complex, Integrated Function of Shoulder Complex, Mobility and Stability of Shoulder Complex, Structural and Functional Dysfunctions around Shoulder Complex • **Biomechanics of Elbow Complex:** Structure and function of the Elbow Complex, Structure and Function of the superior and inferior Radio-ulnar Joints, Mobility and Stability of Elbow Complex,	13 Hrs	To acquire knowledege about the shoulder complex and elbow complex and their mechanisms.	1,2

	Effect of Immobilization and Injury			
V	• **Biomechanics of the Wrist and Hand Complex:** Structural components of the Wrist complex, function, structure and function of the Hand Complex, Finger Musculature, Functional Position of the Wrist and Hand • **Biomechanics of Temporomandibular Joint:** Structure and Function of Temperomandibular joint, Control of the disk, Muscular control of Temperomandibular joint, Relationship with the cervical spine, Dentition, Dysfunctions.	**8 Hrs**	To learn about the wrist and hand complex, temporo-mandibular joint functions and dysfunctions.	1,2
Practical	1. Analysis of muscle work during ADL activities.	**15Hrs**	To analyse the activities and mention the muscle work	1,2, 3,4
	2. Orientation to - Equilibrium board, Shoulder wheel, Shoulder ladder, Bicycle ergometer, Use of parallel Bars. CPM, stepper, treadmill wall Bars, Tilt Beds, springs, Pulleys, overhead pulley system, physio ball, exercise mat, theraband, suspension therapy.	10 Hrs	Identification and purpose of the equipments.	3,4
	3. Walking aids (10hrs).	5 Hrs	Identification of the aids and their uses.	2,3, 4

TEXT BOOKS:

1. Joint Structure and Function – A comprehensive Analysis By Pamela K Levangie, Cynthia C Norkin, JP Bros Medical Publishers, New Delhi.
2. Fundamentals of Biomechanics by Duane Knudson, 2nd ed. 2007 Publisher Springer

REFERENCE BOOKS:

1. Clinical Kinesiology for Physical Therapist Assistants, JP Bros Medical Publishers, Bangalore, 1st Indian Ed1997.
2. Brunnstrom, Clinical Kinesiology, JP Bros Medical Publishers, Bangalore, 5th Ed 1996, 1stIndian Ed1998

RELATIONSHIP BETWEEN COURSE OUTCOMES (CO) AND PROGRAMME OUTCOMES

CO PO Mapping		
SN	**Course Outcome (CO)**	**Mapped Programme Outcome**
1	Apprehend the knowledge of kinetics and kinematics of the human body.	**1,2,3,4,5,6,7,8**
2	Identify the movements of all the joints of the body and recognize the abnormalities present and thereby understand the patho-mechanics related to the joints.	**1,2,3,4,5,8**
3	Identify the joints and muscle and demonstrate the various mechanisms causing the movement in different joints.	**1,2,3,4,5,6,8**
4	Comprehend the concept of forces acting at various joints, muscle and the importance of joint work in activities of daily living.	**1,2,3,4,5,7**
5	Explain the anatomical axis and planes and learn thoroughly about each movement occurring at all the joints of the human body.	**1,2,3,4,5,7,8**

SEMESTER – I									
Course Title	**HUMAN ANATOMY**								
Course code	**23BPTO112R**	**Total Credits: 5**	**L**	**T**	**P**	**S**	**R**	**O/F**	**C**
		Total Hours: 45T+60P	**3**	**0**	**4**	**0**	**0**	**0**	**5**
Pre-Requisite	**NIL**	**CO-REQUISITE**	**Human Physiology and Biomechanics**						
Programme	**Bachelor in Physiotherapy**								
Semester	**1st**								
Course Objectives	1. To introduce the students to the concepts related to Introduction to anatomical terms, Musculo skeletal anatomy, Head and neck, Regional anatomy, Digestive system, Endocrine glands, Tissue, Embryology. 2. The objective of the course is that after lectures, demonstration, and practical the students shall be able to demonstrate knowledge in human anatomy as needed for the study and practice of physiotherapy. 3. To make the students identify specific bones, muscles, joints and describe the features in details								
CO1	Identify the joints, muscles and bone of the human body.								
CO2	Classify the different systems of the human body which comprises of the Central Nervous System, Cardio respiratory system, Reproductive system, etc.								
CO3	Mark the surface anatomy of the human body like the specific bones, muscles and organs of the body.								
CO4	Assess various surface landmarks of the human body.								
CO5	Identify and describe the source, course of major arterial, venous and lymphatic system, with special emphasis to upper extremities, thorax and spine.								

Unit-No.	**Content**	**Contact Hour**	**Learning Outcome**	**KL**
I	**INTRODUCTION TO ANATOMICAL TERMS.** (All the topics to be taught in detail) ●Introduction- Anatomical positions of body, axes, planes, common anatomical terminologies (Groove, tuberosity, trochanters etc.) ●Connective tissue- classification. ●Bones- Composition & functions, classification and types according to morphology and development. ●Joints-definition-classification, structure of fibrous, cartilaginous joints, blood supply and nerve supply of joints. Muscles – origin, insertion, blood supply, nerve supply and actions	**10 hours**	To understand and use the anatomical terms and explain the bones, joints, etc	2,3
II	**MUSCULOSKELETAL ANATOMY**(All the topics to be taught in detail) **Upper Extremity** a .Osteology, myology, nerve & blood supply and lymphatic drainage of upper extremity b. Soft parts: Breast, pectoral region, axilla, cubital fossa c. Joints: Introduction to all joints of Upper Extremity. d. Arches of hand, skin of the palm and dorsum of hand. **Head and Neck:** **Osteology:** Mandible and bones	**8 hours**	To be able to demonstrate the features and side determination of the bones of human body.	1,2

	of the skull. **Soft parts:** Muscles of the face and neck and their nerve and blood supply-extra ocular muscles, triangles of the neck.			
III	**REGIONAL ANATOMY** (All the topics to be taught in detail) Thorax**:** **a) Cardio – Vascular System:** Mediastinum: Divisions and contents Pericardium: Thoracic Wall, Heart: Position, shape and parts of the heart, Conducting System, Big vessels, Circulation of the heart **b)Respiratory system:** Outline of respiratory passages Pleura and lungs: position, parts, relations, blood supply and nerve supply; Lungs – emphasize on Broncho pulmonary segments. Diaphragm, Intercostal muscles and Accessory muscles of respiration.	**10 hours**	To understand and explain the cardio vascular and respiratory systems.	1,3
IV	**1.DIGESTIVE SYSTEM** a) Peritoneum: Parietal peritoneum, visceral peritoneum, folds of peritoneum, functions of peritoneum. b) Large blood vessels of the gut. c) Location, size, shape, features, blood supply, nerve supply and functions of the following: Stomach, liver, spleen, pancreas, intestines, gall bladder. **2.ENDOCRINE GLANDS:** Position, shape, size, function, blood supply and nerve supply of the following glands: Hypothalamus and pituitary gland, thyroid glands, parathyroid glands, Adrenal glands, pancreatic islets, ovaries and testes, pineal glands, thymus	**12 hours**	To understand and explain the digestive and endocrine glands.	3,4
V	**1.TISSUE** General Histology, study of the basic tissues of the body ;Microscope, Cell, Epithelium, Connective Tissue, Cartilage, Bone, Muscular tissue, Nerve Tissue – TS & LS, Circulatory system – large sized artery, medium sized artery, large sized Vein, lymphoid tissue, Skin and its appendages. **2.EMBRYOLOGY** a)Ovum, Spermatozoa, fertilization and formation of the	**5 hours**	To understand the basic of general tissues of the body and the embryology.	1,2

	Germ layers and their derivations. b)Development of skin, Fascia, blood vessels, lymphatic. c)Development of bones, axial and appendicular skeleton and muscles d)Neural tube, brain vessels and spinal cord e)Development of brain and brain stem structures			
Practical	a. Upper extremity including surface Anatomy. b. Histology-Elementary tissue including surface Anatomy. c. Embryology-models, charts & X-rays. -Demonstration of the muscles of the whole body and organs in thorax and abdomen in a cadaver -Demonstration of movements in important joints. -Surface making of the lung, pleura, fissures and lobes of lungs, heart, liver, spleen, -Kidney, cranial nerves, spinal nerves and important blood vessels. -Identification of body prominences on inspection and by palpation especially of extremities. -Points of palpation of nerves and arteries.	**60 Hrs**	To demonstrate the surface anatomy, identify histology slides, organs and palpation.	1,2,3,4

TEXT BOOKS:

1.DATTA [A.K], Essentials of human Anatomy: Thorax and Abdomen Ed 2. Vol. I Current Book International, Culcutta 1994,p433,DATTA[A.K], Essentials ofhumanAnatomy: Head and Neck Ed2. Vol. II, Current Book International, Culcutta 1995, p363,

2.SINGH [Inderbir], Text book of Anatomy with colour atlas: Introduction, Osteology, Upper Extremity, Lower Extremity. Vol I. P Brothers, New Delhi 1996,

3.SINGH [Inderbir], Text book of Anatomy with colour Atlas: Thorax and Abdomen. Vol II. JP

REFERENCE BOOKS:

1. SNELL [Richard S], Clinical Anatomy for Medical students: Ed. 5. Little Brown and Company Boston. 1995,p898,
2. B.D Chaurasia's Human Anatomy – Regional and Applied; Volume I, Volume II and Volume III.
3. MOORIE [Kieth L], Clinically Oriented Anatomy. Ed.3. Williams and Wilkins, Baltimore, 1992,p917,
4. ROMANES [G J], Cunningham manual of practical anatomy: upper and lower limb ed 15 Vol 1 Oxford Medical Publication, Oxford 1996, P263,
5. ROMANES [G J], Cunningham manual of practical anatomy: Thorax and abdomened 15 Vol II Oxford Medical Publication, Oxford 1996, P298,
6. ROMANES [G J], Cunningham manual of practical anatomy: Head and Neckand Brain ed 15 Vol II Oxford Medical Publication, Oxford 1996, P346

RELATIONSHIP BETWEEN COURSE OUTCOMES (CO) AND PROGRAMME OUTCOMES

CO PO Mapping		
SN	**Course Outcome (CO)**	**Mapped Programme Outcome**
1	Identify the joints, muscles and bone of the human body.	**1 ,8**
2	Classify the different systems of the human body which comprises of the Central Nervous System, Cardio respiratory system, Reproductive system, etc.	**1,8**
3	Mark the surface anatomy of the human body like the specific bones, muscles and organs of the body.	**1,8**
4	Assess various surface landmarks of the human body.	**1,6,8**
5	Identify and describe the source, course of major arterial, venous and lymphatic system, with special emphasis to upper extremities, thorax and spine.	**1,3,8**

SEMESTER – I									
Course Title	**HUMAN PHYSIOLOGY**								
Course code	**23BPTO113R**	**Total Credits: 5**	**L**	**T**	**P**	**S**	**R**	**O/F**	**C**
		Total Hours: 45T+60P	**3**	**0**	**4**	**0**	**0**	**0**	**5**
Pre-Requisite	**NIL**	**CO-REQUISITE**	**Human Anatomy**						
Programme	**Bachelor in Physiotherapy**								
Semester	**1st**								
Course Objectives	1.To introduce the students to the concepts related to General physiology, Blood, Nerve muscle physiology, Cardiovascular system, Respiratory system, Digestive system. 2. The objective of this course is that after lectures, demonstration, and lab practical the students will be able to demonstrate and understanding of Human Physiology as needed for the study and practice of physiotherapy								
CO1	Impart an in- depth knowledge of fundamental reactions of living organisms, particularly in the human body.								
CO2	Acquainted with practical classes including hematology experiments, clinical examinations, amphibian chart, and recommended demonstrations.								
CO3	Outline the subject in terms of its function for various system of human body.								
CO4	Analyze physiological responses & adaptation to environmental stresses- with special emphasis on physical activity & temperature.								
CO5	Acquire the skill of basic clinical examination, with special emphasis to Cardiovascular and Respiratory system, & Exercise tolerance/Ergography.								

Unit-No.	Content	Contact Hour	Learning Outcome	KL
I	**GENERAL PHYSIOLOGY** 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. Haemoglobin - Blood indices, PCV, ESR. • WBC: Classification. Morphology, functions, 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, Erythroblastosis foetalis. Blood Transfusion: Cross matching. Indications and complications. Lymph: Composition, formation, circulation and functions.	10 hours	Learn about human cell, blood physiology.	1,2
II	**1. 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. Neuromuscular transmission, myasthenia gravis. **Excitation-** Contraction coupling. Rigormortis. Motor unit. Properties of skeletal muscles, **Strength-** Duration curve, fatigue.	10 hours	Learn about nerve physiology, muscle physiology, neuromuscular junction.	1,2

	Smooth muscle: Structure, types, mechanism of contraction.Plasticity			
III	**CARDIOVASCULAR SYSTEM** • Introduction: Organisation of CVS. Cardiac muscles: Structure. Ionic basis of action potential and pacemaker potential. • Conducting system: Components. Impulse conduction Cardiac Cycle. Heart sounds.ECG: waves & common abnormalities of ECG. • Cardiac Output. Stroke volume and its regulation. Heart rate and its regulation. Their variations • Arterial Blood Pressure: Definition. Normal values and its variations. Determinants. Peripheral resistance. Regulation of BP. • Arterial pulse. • Shock – Definition. Classification–causes and features • Regional Circulation: Coronary, Cerebral and Cutaneous circulation.	10 hours	Learn about physiology of cardiovascular system, ECG, Blood pressure, shock.	1,2
IV	**1. RESPIRATORY SYSTEM** • Introduction: Organisation & Functions of respiratory system. Respiratory muscles. • Mechanics of breathing: Intrapleural and Intrapulmonary pressure changes during respiration. Chest expansion. Lung compliance, Surfactant • Spirometry: Lung volumes and capacities. Timed vital capacity and its clinical significance. Maximum ventilation volume. Respiratory minute volume. • Dead Space: Types and their definition. • Pulmonary Circulation. Ventilation-perfusion ratio and its importance. • Transport of respiratory gases: Diffusion across the respiratory membrane. Oxygen transport – Different forms, oxygen-haemoglobin dissociation curve. Factors affecting it. P50, Haldane and Bohr effect. Carbon dioxide transport: Different forms, chlorideshift. • Regulation of Respirtation: Neural Regulation. Hering-breuer's reflex. Voluntary control. Chemical Regulation • Hypoxia: Effects of hypoxia. Types of hypoxia. Acclimatization Hypercapnoea. Asphyxia. Dysbarism • Disorders of Respiration • Artificial respiration • Respiratory changes during exercise.	10 hours	Learn about physiology of respiratory system, spirometry, transport mechanism, regulation.	1,3
V	**DIGESTIVE 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,	5 hours	Learn about physiology of digestive system	1,2

	functions and regulation. Gall bladder: Functions. • Intestine: Succus entericus: Composition, function and regulation of secretion. Intestinal motility and its function and regulation. Mechanism of Defaecation.			
Practical	PRACTICAL I. Haematology To be done by the students 1. Study of Microscope and its uses 2. Determination of RBC count 3. Determination of WBC count 4. Differential leukocyte count 5. Estimation of haemoglobin 6. Calculation of blood indices 7. Determination of blood groups 8. Determination of bleeding time 9. Determination of clotting time II Demonstrations only 1. Determination of ESR 2. Determination of PCV	60 hours	Learn how to demonstrate various haematological tests.	1,2, 3,4, 5

TEXT BOOKS:

1. Text book of medical physiology – Guyton Arthur
2. Concise medical physiology – Chaudhuri Sujit K.
3. Human Physiology – Chatterjee C.C
4. Text book of practical Physiology –Ranade.
5. Text of Physiology – A.K.Jain.

REFERENCE BOOKS:

1. Basics of Medical physiology- Venkatesh D &Sudhakar HH
2. Manipal Manual of Physiology – Prof. C N Chandrashekar Reference:
3. Review of Medical Physiology – Ganong William F.
4. Physiological basis of Medical practice – Best &Taylor

RELATIONSHIP BETWEEN COURSE OUTCOMES (CO) AND PROGRAMME OUTCOMES

CO PO Mapping		
SN	**Course Outcome (CO)**	**Mapped Programme Outcome**
1	Impart an in- depth knowledge of fundamental reactions of living organisms, particularly in the human body.	**1,8**
2	Acquainted with practical classes including haematology experiments, clinical examinations, amphibian chart, and recommended demonstrations.	**3,8**
3	Outline the subject in terms of its function for various system of human body.	**1,8**
4	Analyze physiological responses & adaptation to environmental stresses- with special emphasis on physical activity & temperature.	**1,2,8**
5	Acquire the skill of basic clinical examination, with special emphasis to Cardiovascular and Respiratory system, & Exercise tolerance/Ergography.	**1,2,8**

SEMESTER – I									
Course Title	**BIOCHEMISTRY**								
Course code:	**23BPTO114R**	**Total Credits: 2**	**L**	**T**	**P**	**S**	**R**	**O/F**	**C**
		Total Hours: 30T	**2**	**0**	**0**	**0**	**0**	**0**	**2**
Pre-Requisite	**NIL**	**CO-REQUISITE**	**Anatomy and Physiology**						
Programme	**Bachelor in Physiotherapy**								
Semester	**1st**								
Course Objectives	1.To introduce the concepts of biomolecules, enzymes, metabolism, nutrition, digestion and absorption. 2. To describe the structures of biomolecules and their role in physiological function. 3. To develop link between nutrition, digestion and biomolecules.								
CO1	Apprehend the knowledge of structure and function of biomolecules (carbohydrates, lipids, protein and nucleic acids).								
CO2	Understand the normal function of different components of food, and the basics of Enzymology.								
CO3	Comprehend the concept of basics of food nutrition.								
CO4	Explain about BMR and SDA values.								
CO5	Comprehend the knowledge of Nutrition and Biomolecules.								

Unit-No.	Content	Contact Hour	Learning Outcome	KL
I	**Nutrition:** Introduction, Importance of nutrition Calorific values, Respiratory quotient – Definition, and its significance Energy requirement of a person - Basal metabolic rate: Definition, Normal values, factor affecting BMR Special dynamic action of food. **Physical activities -** Energy expenditure for various activities. Calculation of energy requirement of a person **Balanced diet** Recommended dietary allowances **Role of carbohydrates in diet:** Digestible carbohydrates and dietary fibers Role of lipids in diet **Role of proteins in diet:** Quality of proteins - Biological value, net protein utilization, Nutritional aspects of proteins-essential and non- essential amino acids. Nitrogen balance, Nutritional disorders. **Carbohydrate Chemistry** Definition, general classification with examples, Glycosidic bond Structures, composition, sources, properties and functions of Monosaccharides, Disaccharides, Oligosaccharides and Polysaccharides. Glycosaminoglycans (mucopolysaccharides). **Lipid Chemistry** Definition, general classification Definition, classification, properties and functions of Fatty acids, Triacylglycerol, Phospholipids, Cholesterol, Essential fatty acids and their importance, Lipoproteins: Definition, classification, properties, Sources and function Ketone bodies.	**10 hrs**	Students will learn about ● BMR, Balanced diet, ● Carbohydrate structures, their functions	1,2
II	**Amino-acid Chemistry** Amino acid chemistry: Definition, Classification, Peptide bonds, Peptides: Definition, Biologically important peptides, Protein chemistry: Definition, Classification, Functions of proteins. Special focus on structural organization and associated disorders of Collagen, Elastin and Glycoproteins.	**7 hrs**	Students will gain knowledge about ● Amino acids, proteins and their structure. Also will learn about their functions. ● Structure of Nucleic	1,2

	Nucleotide and Nucleic acid Chemistry Nucleotide chemistry: Nucleotide composition, functions of free nucleotides in body.Nucleic acid (DNA and RNA) chemistry: Difference between DNA and RNA,Structure of DNA (Watson and Crick model), Functions of DNA. Structure and functions of tRNA, rRNA, mRNA.		acids, nucleotides and their biochemical roles.	
III	**Enzymes** Definition, Active site, Cofactor (Coenzyme, Activator), Proenzyme. Classification with examples, Factors effecting enzyme activity, Enzyme inhibition and significance, Isoenzymes, Diagnostic enzymology (clinical significance of enzymes) **Digestion and Absorption** General characteristics of digestion and absorption, Digestion and absorption of carbohydrates, proteins and lipids. Disorders of digestion and absorption – Lactose intolerance.	**7 hrs**	● They will learn about enzymes, their role in biochemical reactions. ● Learn about digestion, what the importance of enzymes in this process is and how the biomolecules are absorption for utilization by the cell.	1,2
IV	**1.Vitamins**: Definition, classification according to solubility, Individual vitamins - Sources, Coenzyme forms, functions, RDA, digestion, absorption and transport, deficiency and toxicity.	**3 hrs**	● Students will build knowledge about structure and function of Vitamins. Also, understand their role as coenzyme many reactions.	1,3
V	**2.Mineral Metabolism**: Definition, Sources, RDA, Digestion, absorption, transport, excretion, functions, disorder of Individual minerals - Calcium, phosphate, iron, Magnesium, fluoride, selenium, molybdenum, copper. Phosphate, calcium and iron in detail.	**3hrs**	● Students will know the importance of minerals in the body. ● They would learn how the minerals are absorbed and transport in the body	1,2

TEXT BOOKS:

1. "Lehninger Principles of Biochemistry" by David L Nelson and Michael M Cox

2. "Biochemistry" by U Satyanaryana and U Chakrapani

REFERENCE BOOKS:

1. "Haper's Illustrated Biochemistry" by Robert Murray, Daryl K Granner et al.
2. "Biochemistry" by Lubert Stryer, Jeremy M Berg, et al.
3. "Biochemistry" by David E Metzler.

RELATIONSHIP BETWEEN COURSE OUTCOMES (CO) AND PROGRAMME OUTCOMES

CO PO Mapping		
SN	**Course Outcome (CO)**	**Mapped Programme Outcome**
1	Apprehend the knowledge of structure and function of biomolecules (carbohydrates, lipids, protein and nucleic acids).	**7**
2	Understand the normal function of different components of food, and the basics of Enzymology.	**7**
3	Comprehend the concept of basics of food nutrition.	**7**
4	Explain about BMR and SDA values.	**7**
5	Comprehend the knowledge of Nutrition and Biomolecules.	**7**

SEMESTER – I									
Course Title	**PSYCHOLOGY & SOCIOLOGY**								
Course code	**23BPTO115R**	**Total Credits: 2**	**L**	**T**	**P**	**S**	**R**	**O/F**	**C**
		Total Hours: 30T	**2**	**0**	**0**	**0**	**0**	**0**	**2**
Pre-Requisite	**NIL**	**CO-REQUISITE**	**NIL**						
Programme	**Bachelor in Physiotherapy**								
Semester	**1st**								
Course Objectives	1.To understand the fundamental processes underlying human behaviour. 2.To gain a better understanding of the field of psychology both historic and current. 3.To develop an understanding of processes involved in learning and cognition. 4.This course will introduce the students to basic ideas about sociology and various other concepts related to society. 5.This course will also familiarize the students with social factors in health and disease situations, socialization, social groups, and various other institutions in society. 6. This paper shall also look at social changes and how society has developed from the past till present.								
CO1	Understand the meaning, nature, and scope of psychology and also the students will be able to the relationship of sociology with other disciplines. The methods of sociological investigations as well as the significance of societal factors for healthcare professionals								
CO2	Analyze the role of heredity and environment in growth & development and also the students will look at the importance of societal factors in case of health and illness								
CO3	Analyse the fundamental concepts related to sensation, attention, and perception and the students will look at the processes of socialization and the other agencies of socialization								
CO4	Understand the meaning and nature of motivation, comprehend its significance in driving behaviour and achieving goals & the students shall understand the impact of social groups in society as well as in sickness and health								
CO5	Analyze sources & impact of frustration and conflict in personal, professional, and social contexts &Students will here learn the social changes that has taken place from the past and how social change is related to other factors of significance in society								

Unit-No.	**Content**	**Contact Hour**	**Learning Outcome**	**KL**
I	Introduction to Psychology Meaning, Nature and Scope of Psychology a.Methods: Introspection, observation, inventory, and experimental method. b.Branches : Pure psychology and applied psychology c.Psychology and Physiotherapy.	2	Students will learn about the different methods of Psychlogy, its branches and how it is related to physiotherapy.	1,2
	Introduction to Sociology: Meaning-Definition and scope of Sociology, Relation to anthropology, psychology, social psychology, Methods of sociological investigation- case study, interview, opinion poll method, social survey and opinion poll methods, Importance of sociology with special reference to health-care professionals	**3**	Students will learn the different ways of conducting research in society and the importance of sociological concepts in relation to healthcare sector	1,2
II	Growth and Development . Life span : different stages of development (Infancy, childhood, adolescence, adulthood, middle age, old age) a. Heredity and environment : role of heredity and environment in physical and psychological development, “Nature v/s Nuture controversy”	3	The students will understand the role of growth and development in adolescence, adulthood, middle age and old age. they will also be acquainted with the role of nature and nurture on development.	1,2

	Social factors in Health and disease situations: Meaning of social factors, Role of social factors in health and illness	**3**	The students will understand the role of societal factors in health and illness as well as look at different social factors in society	1,2
III	Sensation, Attention and perception . Sensation: Vision, Hearing, Olfactory, Gustatory and Cutaneous sensation, movement, equilibrium and visceral sense. a. Attention: Type so of attention, determinants of attention b. Perception: Gestalt principles of organization of perception, factors influencing perception c. Illusion and Hallucination: Different types.	4	The students shall learn the essence of sensation, attention and percetion on human behaviour. they will also learn about various forms of hallucination and illusion.	1,3
	Socialization: Meaning and nature of socialization, Primary, Secondary and Anticipatory socialization, Agencies of socialization	**3**	The students shall learn the essence of socialization as well as the different agencies and types of socialising	1,3
IV	Motivation: . Meaning and Nature of Motivation a. Motivation cycle b. Classification of motives	3	Students will understand the impact of motivation and its classification.	1,3
	Social Groups: Concepts of social groups influence on formal and informal groups on health and sickness, The role of primary and secondary groups in the hospital and rehabilitation setup	**3**	Students will understand the impact of sickness on the society and the role of societal groups in other medical units	1,3
V	Frustration and Conflict: . Meaning and Nature of Frustration and Conflict a. Frustration: Sources of Frustration b. Conflicts: Types of Conflict	3	Students will learn about the various sources of frustration and conflict along with its types.	1,2
	Social Change: Meaning of social changes, Factors of social changes, Human adaptation and social change, Social change and stress, Social change and deviance, Social change and health Programme,The role of social planning in the improvement of Health and rehabilitation	**3**	Students will learn about the various social institutions and impact of social change on the same	1,2

TEXT BOOKS:

1. Morgan, C. T., & King, R. A. (1975). Study guide for Morgan and King Introduction to psychology: Fifth edition. New York: McGraw-Hill
2. Class 11 and 12 NCERT Psychology Textbooks.
3. Franklin, Henry, 1990, The Principles of Sociology, Jaipur: Print Well publishers.
4. Social Change and Development in India Textbook in Sociology, NCERT
5. Giddens, Anthony, 2010, Sociology, 6th edition, Polity Press.
6. Pandit, Niraj, 2012, Sociology for Health Professionals, 2nd edition, Wolters Kluwer Press

REFERENCES:

1. Baron, R. &Misra.G. (2013). Psychology. New Delhi: Pearson.
2.Ciccarelli, S. K., & Meyer, G. E. (2010). Psychology: South Asian Edition. New Delhi: Pearson Education
3.Chadha, N.K. & Seth, S. (2014). The Psychological Realm: An Introduction. New Delhi: Pinnacle Learning.
4.Shankar Rao, C.N., 2012, Principles of Sociology with an Introduction to Social Thought, S,Chand publication

5.Haralambos, 2007, Sociology: Themes and Perspectives, Bombay: OUP.
6.Ogburn and Nimkoff, 1966, A Handbook of Sociology, New Delhi: Eurasia Publication House (pvt) Ltd.
7.Giddens, Anthony, 2010, Sociology, 6th edition, Polity Press.
8.Rawat, H K, 2010, Sociology: Basic concepts, Jaipur: Rawat Publications.

RELATIONSHIP BETWEEN COURSE OUTCOMES (CO) AND PROGRAMME OUTCOMES

CO PO Mapping		
SN	**Course Outcome (CO)**	**Mapped Programme Outcome**
1	Understand the meaning, nature, and scope of psychology and also the students will be able to the relationship of sociology with other disciplines. The methods of sociological investigations as well as the significance of societal factors for healthcare professionals	**1,2,3,4,5,6,7,8**
2	Analyze the role of heredity and environment in growth & development and also the students will look at the importance of societal factors in case of health and illness	**1,2,3,4,5,6,7,8**
3	Analyse the fundamental concepts related to sensation, attention, and perception and the students will look at the processes of socialization and the other agencies of socialization	**1,2,3,4,5,6,7,8**
4	Understand the meaning and nature of motivation, comprehend its significance in driving behaviour and achieving goals & the students shall understand the impact of social groups in society as well as in sickness and health	**1,2,3,4,5,6,7,8**
5	Analyze sources & impact of frustration and conflict in personal, professional, and social contexts &Students will here learn the social changes that has taken place from the past and how social change is related to other factors of significance in society	**1,2,3,4,5,6,7,8**

SEMESTER – I									
Course Title	**ELEMENTARY ENGLISH**(Communicative English & Soft Skills)								
Course code	**23UBPD112R**	**Total Credits: 2**	**L**	**T**	**P**	**S**	**R**	**O/F**	**C**
		Total Hours: 60P	**0**	**0**	**4**	**0**	**0**	**0**	**2**
Pre-Requisite	**NIL**	**CO-REQUISITE**	**NIL**						
Programme	**Bachelor in Physiotherapy**								
Semester	**1st**								
Course Objectives	1. To enable the students to learn, comprehend and apply the basics of English grammar in the language use. 2. To develop the skills of listening and speaking through various exercises. 3. To learn and understand the basics of Phonetics and importance of correct pronunciation in a language.								
CO1	Grammar exercises will enable the students to develop their speaking and writing skills.								
CO2	Communication skills will help them express themselves informal and informal situations.								
CO3	Students will be able to generate simple sentences containing learned vocabulary and using appropriate grammatical structures.								
CO4	Students will develop confidence in verbal and written communication through structured practice.								
CO4	They will enhance their ability to comprehend and respond effectively in various real-life communication scenarios.								

Unit-No.	**Content**	**Contact Hour**	**Learning Outcome**	**KL**
I	Grammar • Parts of Speech • Articles Affirmative and Negative Sentences	6 hrs	Describe, illustrate about how to write speech, articles etc.	1,2, 3,4, 5
II	Grammar • Determiners • Sentence Construction from jumbled words • Types of Sentences (Assertive, Imperative etc.)	6 hrs	Describe, illustrate about how to write the sentence	1,2, 3,4, 5
III	Building Vocabulary Synonyms Antonyms	8 hrs	Describe, illustrateabout how to change the word.	1,2, 3,4, 5
IV	Speaking Skills • Introduction and greetings • Pronunciation • Asking and offering information Video Recording for self-analysis	6 hrs	Describe, illustrate about how to speaking.	1,2, 3,4, 5
V	Communication Skills • Introduction to Communication, • Importance of Communication Skills, • Purpose of Communication, • Types of Communication, • Barriers to Communication,	8 hrs	Describe, illustrate about how to communicate	1,2, 3,4, 5

TEXT BOOKS

- English Vocabulary in Use (Advanced),Michael Mc CarthyandFelicity,CUP.
- English Grammar in Use, Raymond Murphy 4 thedition,CUP.
- Effective Communication and Soft Skills, Nitin Bhatnagar, Pearsons.

REFERENCE BOOKS:

- Elementary English Grammar, Shri Sai Printographers, 2019
- Elementary English Grammar and Practice, Collins Corpus.
- Wren, P.C and Martin, H.1995. High School English Grammar and Composition,S Chand Publishing.
- Suggested Reading.

RELATIONSHIP BETWEEN COURSE OUTCOMES (CO) AND PROGRAMME OUTCOMES

CO PO Mapping		
SN	**Course Outcome (CO)**	**Mapped Programme Outcome**
1	The application of grammatical rules will enable the students to improve the speaking and writing skills.	**1,2,3,4,5,6,7,8**
2	It enables the learners to use the language effectively.	**1,2,3,4,5,6,7,8**
3	It will strength both listening and speaking skills.	**1,2,3,4,5,6,7,8**
4	It will strengthen their vocabulary and use of words.	**1,2,3,4,5,6,7,8**
5	It will give an introduction on the concept of communication, its importance and barriers.	**1,2,3,4,5,6,7,8**

SEMESTER – I									
Course Title	**CO CUURICULAR ACTIVITIES / EXTRA CURRICULAR ACTIVITIES**								
Course code	**24UBCC1201R/ 23UBEC111R**	**Total Credits: 1**	**L**	**T**	**P**	**S**	**R**	**O/F**	**C**
		Total Hours:	**0**	**0**	**0**	**4**	**0**	**0**	**1**
Pre-Requisite	**NIL**	**ANTI-REQUISITE**	**NIL**						
Programme	**All UG Programmes**								
Semester	**1st**								
Course Objectives	It is to develop the social and soft skills and to promote a holistic development of the learners								
CO1	The students will be engaged in different activities headed under different clubs namely dance, music, photography, drama, literacy, etc. The students will participate in regular club activities like workshops, competitions as per their interest and hobbies. The students will be trained to represent ADTU in various inter university, state and national level competitions. The students will be given a platform to earn from invited experts in their respective fields. The students will get an exposure of 360 degree learning methodology considering the overall growth along with the academics.								

Content

AdtU encourages a range of activities outside the regular curriculum intended to meet learner's interest, These activities are aimed to develop the social and soft skills and promote a holistic development of the learners, Keeping in mind the 360 degree learning methodology the students are engaged in different activities headed under different clubs viz. Dance, music, photography, drama, literary etc., The students are encouraged to participate in regular club activities, workshops, competitions as per their interest and hobbies, The student members of the club are trained represent AdtU in various inter University student and national level competitions, Renewed personalities are invited to conduct workshops that benefit the members and students by giving them the platform to learn from experts in the respective fields.

Co-curricular activities in physiotherapy focus on enhancing both academic learning and professional development within the department. These activities often include interdepartmental seminars, workshops, hands-on clinical practice, and case study discussions, where students can engage with faculty and peers. Additionally, departmental events such as physiotherapy awareness campaigns, fitness sessions, and health screenings provide opportunities for students to actively contribute to community wellness while honing their clinical and communication skills. These activities help foster a collaborative learning environment, encourage leadership, and prepare students for the demands of real-world physiotherapy practice.

SEMESTER – II									
Course Title	**BIOMECHANICS OF HUMAN MOTION**								
Course code	**23BPTO121R**	**Total Credits: 4**	**L**	**T**	**P**	**S**	**R**	**O/F**	**C**
		Total Hours: 45T+30P	**3**	**0**	**2**	**0**	**0**	**0**	**4**
Pre-Requisite	**NIL**	**CO-REQUISITE**	**Human Anatomy and Human Physiology**						
Programme	**Bachelor in Physiotherapy**								
Semester	**2nd**								
Course Objectives	1. To introduce the students to the concepts related to Basic Concepts of Biomechanics Joint Structure and Function, Biomechanics of hip joint, Biomechanics of knee joint, Biomechanics of ankle joint, Gait and Posture. 2. To introduce the students to the mechanical aspects of the human body. 3. To make the students able to identify the normal movements of the body and recognize the abnormalities.								
CO1	Apprehend the knowledge of the kinetics and kinematics of the human body.								
CO2	Identify the movements of the joints and recognize the abnormalities of lower limbs.								
CO3	Identify the joints and muscles and enhance the mechanisms of hip, knee, ankle joints, Posture and gait.								
CO4	Acquire and apply the knowledge of forces acting at various joints of the human body.								
CO5	Apply the concept of axis and planes for the movement of lower limb.								

Unit-No.	**Content**	**Contact Hour**	**Learning Outcome**	**KL**
I	**Biomechanics of Vertebral Column:** General structure and Function (Region wise), Mobility and Stability of Vertebral Column, Muscles of the Vertebral Column, Biomechanics pelvic girdle, General effects of Aging and Injury **Biomechanics of Breathing** : Biomechanics of Breathing - mechanism of inspiration and expiration, movements of thorax.	8 Hrs	To learn about the Biomechanics of Vertebral column and mechanism of breathing.	1,2
II	**Biomechanics of the Hip Complex:** Structure and Function of the Hip Joint, Arthrokinematics and Osteokinematics, Hip Joint Musculature, Stability, Muscle Function in Bilateral and Single leg Stance, Trabecular System, Biomechanical alteration in various Hip joint Pathology.	8 Hrs	To learn about the Biomechanics of Hip joint and the pathologies.	1,2
III	**Biomechanics of the Knee Complex:** Structure and Function of the Tibiofemoral Joint, Static and Dynamic stability of Tibiofemoral Joint, Structure and Function of the Patellofemoral Joint, Stability of Patella, Biomechanics changes in the Knee complex with Pathology **Biomechanics of the Ankle Complex:** Kinematics and Kinetics of the Tibiotalar Joint, Stability of the Ankle Joint, Arch of foot, Effect of weight bearing on foot.	8 Hrs	To learn about the Biomechanics of Knee joint, Ankle joint and the pathologies.	1,2
IV	**Biomechanics of Gait**: Kinematics of Gait, Phases, Spatiotemporal Parameters of Gait, Determinants of Gait, Energy requirements, Kinetics of Gait, External and Internal Forces, Kinetics and Kinematics of the Trunk and Upper Extremities, Stair climbing gait, Effect of age, Gender,	13 Hrs	To learn about the Biomechanics of gait, phases of gait, gait pathologies.	1,2

	Assistive Devices, Disease States, Muscle pathology, Mal alignments, Injuries and limb length discrepancies on Human Gait. Disease States, Muscle pathology, Malalignments, Injuries and limb length discrepancies on Human Gait. Abnormal gait, Impairments.			
V	**Posture:** Static and Dynamic Posture, Major Goals and basic elements of Postural control, Kinetics and Kinematics of Posture, Inertial and Gravitational Forces, Ground Reaction Forces, Optimal or Ideal Posture, Biomechanics analysis of Posture in all planes, Effect of Age, Pregnancy, and Pathology on Posture.	8 HRS	To learn about the elements of Postural control, kinetics and kinematics of gait.	1,2
Practical	1. Pathological gaits.	6 Hrs	To analyse the different types of gait.	1,2,3,4
	2. Limb length and limb girth.	16 Hrs	Identification and assessment of limb lengths and limb girth.	2,3,4
	3. Goniometry.	8 Hrs	To identify the instrument and assess the parts and measure the joint ROM.	1,2,3

TEXT BOOKS:

1. Joint Structure and Function – A comprehensive Analysis By Pamela K Levangie, Cynthia C Norkin, JP Bros Medical Publishers, New Delhi.
2. Fundamentals of Biomechanics by Duane Knudson, 2nd ed. 2007 Publisher Springer

REFERENCE BOOKS:

1. Clinical Kinesiology for Physical Therapist Assistants, JP Bros Medical Publishers, Bangalore, 1st Indian Ed1997.

2. Brunnstrom, Clinical Kinesiology, JP Bros Medical Publishers, Bangalore, 5th Ed 1996, 1stIndian Ed1998

RELATIONSHIP BETWEEN COURSE OUTCOMES (CO) AND PROGRAMME OUTCOMES

CO PO Mapping		
SN	**Course Outcome (CO)**	**Mapped Programme Outcome**
1	Apprehend the knowledge of the kinetics and kinematics of the human body.	**1,2,3,4,5,6,7,8**
2	Identify the movements of the joints and recognize the abnormalities of lower limbs.	**1,2,3,4,5,8**
3	Identify the joints and muscles and enhance the mechanisms of hip, knee, ankle joints, Posture and gait.	**1,2,3,4,5,6,8**
4	Acquire and apply the knowledge of forces acting at various joints of the human body.	**1,2,3,4,5,7**
5	Apply the concept of axis and planes for the movement of lower limb.	**1,2,3,4,5,6,7,8**

SEMESTER – II									
Course Title	**HUMAN ANATOMY**								
Course code	**23BPTO122R**	**Total Credits: 5**	**L**	**T**	**P**	**S**	**R**	**O/F**	**C**
		Total Hours: 45T+60P	**3**	**0**	**4**	**0**	**0**	**0**	**5**
Pre-Requisite	**NIL**	**CO-REQUISITE**	**Human Physiology and Biomechanics**						
Programme	**Bachelor in Physiotherapy**								
Semester	**2nd**								
Course Objectives	1. To introduce the students to the concepts related to Introduction to anatomical terms, musculoskeletal anatomy, Lower limb and trunk, Neuroanatomy, Regional anatomy, Digestive system, Endocrine glands, Tissue, Urinary system, special senses. 2. The objective of the course is that after lectures, demonstration, and practical the students shall be able to demonstrate knowledge in human anatomy as needed for the study and practice of physiotherapy. 3.To make the students identify specific bones, muscles, joints and describe the features in details								
CO1	Identify the lower limb joints, muscles and bone of the human body.								
CO2	Explain the different systems of the human body which comprises of the Central Nervous System, Cardio respiratory system, Reproductive system, Special senses etc								
CO3	Identify the specific bones, muscles and organs of the lower limb of the body.								
CO4	Apprehend and apply the knowledge of anatomical terms and terminologies.								
CO5	Acquire the knowledge of anatomical basis of various clinical conditions e.g. trauma, deformities, pertaining to lower limbs & pelvis.								

Unit-No.	**Content**	**Contact Hour**	**Learning Outcome**	**KL**
I	**1. MUSCULOSKELETAL ANATOMY: Lower Extremity** a. Osteology , years old onology, nerve & blood supply and lymphatic drainage of lower extremity b. Soft parts: Gluteal region, thigh (Femoral triangle, femoral canal inguinal canal, Adductor canal, popliteal fossa), sole of the foot, arches of foot, skin of foot. c. Lymphatic drainage, venous drainage & arterial supply of lower limbs & Joints. **Trunk &Pelvis:** a) Osteology , years old oncology, nerve & blood supply and lymphatic drainage of trunk and pelvis. ● Soft tissue: Inter-vertebral disc.	**10 hours**	To understand and use the anatomical terms and explain the bones, joints, etc and to be able to demonstrate the features and side determination of the bones of human body.	2,3
II	**2. URINARY SYSTEM (5 hours)** Location, size, shape, features, blood supply, nerve supply and functions of the following: kidney, urinary bladder.	**10 hours**	To understand and explain the Urinary systems.	1,2
III	**3. REPRODUCTIVE SYSTEM** Position, shape, size, features, blood supply and nerve supply of the male and female reproductive system.	**10 hours**	To understand and explain the Reproductive systems.	1,3
IV	**4. NEURO ANATOMY** Central Nervous System: Brain Stem, Cerebellum , Thalamus, Hypothalamus Corpus striatum, Cerebral hemisphere, Lateral ventricles, Spinal segments and areas a. Cranial nerves b. Peripheral nervous system	**10 hours**	To understand and explain the Central Nervous system.	3,4

	c. Neuromuscular junction d. Blood supply to brain, Basal Ganglia, Pons, medulla The pyramidal & extra pyramidal systems			
V	**SPECIAL SENSES (4 hours)** Gross anatomy of eye ball, nose, ears and tongue.	**5 hours**	To understand the basic of gross anatomy of eye ball, nose, ears and tongue.	1,2
Practical	1. Lower extremity including surface Anatomy 2. Head & Spinal cord and Neck and Brain including surface Anatomy 3. Thorax including surface anatomy, abdominal muscles joints • Demonstration of the muscles of the whole body and organs in thorax and abdomen in a cadaver • Demonstration of movements in important joints. • Surface making of the lung, pleura, fissures and lobes of lungs, heart, liver, spleen, • Kidney, cranial nerves, spinal nerves and important blood vessels. • Identification of body prominences on inspection and by palpation especially of extremities. • Points of palpation of nerves and arteries.	**60 Hrs**	To demonstrate the surface anatomy, identify histology slides,organs and palpation.	1,2,3, 4

TEXT BOOKS:

1.DATTA [A.K], Essentials of human Anatomy: Thorax and Abdomen Ed 2. Vol. I Current Book International, Culcutta 1994,p433,DATTA[A.K], Essentials ofhumanAnatomy: Head and Neck Ed2. Vol. II, Current Book International, Culcutta 1995, p363,
2.SINGH [Inderbir], Text book of Anatomy with colour atlas: Introduction, Osteology, Upper Extremity, Lower Extremity. Vol I. P Brothers, New Delhi 1996,
3.SINGH [Inderbir], Text book of Anatomy with colour Atlas: Thorax and Abdomen. Vol II. JP

REFERENCE BOOKS:

1. SNELL [Richard S], Clinical Anatomy for Medical students: Ed. 5. Little Brown and Company Boston. 1995,p898,
2. B.D Chaurasia's Human Anatomy – Regional and Applied; Volume I, Volume II and Volume III.
3. MOORIE [Kieth L], Clinically Oriented Anatomy. Ed.3. Williams and Wilkins, Baltimore, 1992,p917,
4. ROMANES [G J], Cunningham manual of practical anatomy: upper and lower limb ed 15 Vol 1 Oxford Medical Publication, Oxford 1996, P263,
5. ROMANES [G J], Cunningham manual of practical anatomy: Thorax and abdomened 15 Vol II Oxford Medical Publication, Oxford 1996, P298,
6. ROMANES [G J], Cunningham manual of practical anatomy: Head and Neckand Brain ed 15 Vol II Oxford Medical Publication, Oxford 1996, P346

RELATIONSHIP BETWEEN COURSE OUTCOMES (CO) AND PROGRAMME OUTCOMES

CO PO Mapping		
SN	**Course Outcome (CO)**	**Mapped Programme Outcome**
1	Identify the lower limb joints, muscles and bone of the human body.	**1,8**
2	Explain the different systems of the human body which comprises of the Central Nervous System, Cardio respiratory system, Reproductive system, Special senses etc	**1,8**
3	Identify the specific bones, muscles and organs of the lower limb of the body.	**1,8**
4	Apprehend and apply the knowledge of anatomical terms and terminologies.	**1,6,8**
5	Acquire the knowledge of anatomical basis of various clinical conditions e.g. trauma, deformities, pertaining to lower limbs & pelvis.	**1,3,8**

SEMESTER – II									
Course Title	**HUMAN PHYSIOLOGY**								
Course code	**23BPTO123R**	**Total Credits: 5**	**L**	**T**	**P**	**S**	**R**	**O/F**	**C**
		Total Hours: 45T+60P	**3**	**0**	**4**	**0**	**0**	**0**	**5**
Pre-Requisite	**NIL**	**CO-REQUISITE**	**Human Anatomy**						
Programme	**Bachelor in Physiotherapy**								
Semester	**2nd**								
Course Objectives	1.To introduce the students to the concepts related to endocrine system, reproductive system, renal system, nervous system and special senses. 2. The objective of this course is that after lectures, demonstration, and lab practical the students will be able to demonstrate and understanding of Human Physiology as needed for the study and practice of physiotherapy								
CO1	Acquainted with the knowledge of fundamental systems of the human body.								
CO2	Understand the systemic circulation; sensory receptors; special senses; motor unit; spinal cord; control of movement; hypothalamic functions; endocrine system etc.								
CO3	Demonstrate practicals which includes sensory examination, motor examination, reflexes and cranial nerve examination recommended demonstrations.								
CO4	**U**nderstand and demonstrate the subject in terms of its function for various system of human body.								
CO5	Acquire the knowledge of the relative contribution of each organ system in maintenance of the homeostasis.								

Unit-No.	**Content**	**Contact Hour**	**Learning Outcome**	**KL**
I	**ENDOCRINE SYSTEM** **Introduction:** Major endocrine glands. Hormone: classification, mechanism of action. Functions of hormones Secretory cells, action on target cells, synthesis, storage, action , regulation of secretion of each hormone & Disorders of Pituitary Gland, Thyroid Gland, Parathyroid Gland, Adrenal Gland, Endocrine Pancreas, Hypothalamic Relationship. Glucose metabolism and its regulation, Calcitrol, Thymus and Pineal gland (very brief).Local Hormones.(Briefly).	**10 hours**	The students should be able to learn about endocrine system	1,2
II	**REPRODUCTIVE SYSTEM** **Introduction:** Sex determination. Sex differentiation. **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: oestrogen and progesterone-action. Regulation of secretion. Mentrual Cycle: Phases. Ovarian cycle. Uterine cycle. Hormonal **basis. Menarche. Menopause. Pregnancy: Pregnancy tests. Physiological changes during pregnancy.** Functions of placenta. **Lactation.** Contraception methods	**6 hours**	The students should be able to learn about there productive system	1,2
III	**RENAL SYSTEM**	**6 hours**	The students should be able to	1,2

	•**Nephrons,** Renal blood flow and its regulation. Functions of kidneys. •**Mechanism of Urine Formation.** Renal clearance. Insulin clearance. **Creatinine clearance.** Glucose clearance •**Tubular Reabsorption &Tubular** Secretion •**Mechanism of concentrating and diluting the Urine**: Counter-current mechanism. Regulation of water excretion. Diuresis. Diuretics. •**Micturition.** •**Acid-Base balance** (very brief) •**Artificial Kidney**: Principle of haemodialysis. •Skin and temperature regulation.		learn about the renal system.	
IV	**SPECIAL SENSES** •**Vision: Introduction:** 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** •**Visual Reflexes:** Accommodation, Pupillary and Light. Visual acuity and Visual field. Light adaptation. Dark **adaptation. Color vision –** color blindness. Nyctalopia. •**Audition**: 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. Funcions. Disorders	**8 hours**	The students should be able to learn about the special senses	1,3
V	**NERVOUS SYSTEM** • **Introduction:** Organisation of CNS – central and peripheral nervous system. Functions of nervous system. Synapse: classification, Synaptic transmission. Properties. • **Sensory Mechanism:** Sensory receptors: function, classification and properties. Sensory pathway. The trigeminal pathway. Sensory cortex. Somatic sensations.Pain sensation: mechanism of pain. Cutaneous pain –slow and fast pain, hyperalgesia. Deep pain.	**15 hrs**	The students should be able to learn about the Nervous system**.**	1,2

	Visceral pain – referred pain. Gate control theory of pain. •**Motor Mechanism:** Motor Cortex. Motor pathway. Upper motor neuron and lower motor neuron. •**Reflex Action:** components, Bell-Magendie law, classification and Properties. Monosynaptic and polysynaptic reflexes, superficial reflexes, deep reflexes. Stretch reflex. Muscle tone ●**Spinal cord Lesions:** Complete transection and Hemi section 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 cerebral cortex – 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 parasympathetic and sympathetic nervous system.			
Practical	**Clinical examination :** **1.** Examination of Sensory system. **2.** Recording of Motor system **3.** Examination of reflexes. **4.** Examination of cranial nerves .	**60 hours**	The students should be able to demonstrate the examination of sensory, motor, reflexes and cranial nerves	1,2,3

TEXT BOOKS:

1.Text book of medical physiology – Guyton Arthur
2.Concise medical physiology – Chaudhuri Sujit K.
3.Human Physiology – Chatterjee C.C
4.Text book of practical Physiology –Ranade.
5.Text of Physiology – A.K.Jain.

REFERENCE BOOKS:

1.Basics of Medical physiology- Venkatesh D &Sudhakar HH
2.Manipal Manual of Physiology – Prof CN Chandrashekar
3.Review of Medical Physiology – Ganong WilliamF
4.Physiological basis of Medical practice – Best &Taylor

RELATIONSHIP BETWEEN COURSE OUTCOMES (CO) AND PROGRAMME OUTCOMES

CO PO Mapping		
SN	**Course Outcome (CO)**	**Mapped Programme Outcome**
1	1.To introduce the students to the concepts related to endocrine system, reproductive system, renal system, nervous system and special senses. 2. The objective of this course is that after lectures, demonstration, and lab practical the students will be able to demonstrate and understanding of Human Physiology as needed for the study and practice of physiotherapy	**1,8**
2	Acquainted with the knowledge of fundamental systems of the human body.	**1,8**
3	Understand the systemic circulation; sensory receptors; special senses; motor unit; spinal cord; control of movement; hypothalamic functions; endocrine system etc.	**1,2,8**
4	Demonstrate practicals which includes sensory examination, motor examination, reflexes and cranial nerve examination recommended demonstrations.	**1,2,8**
5	**U**nderstand and demonstrate the subject in terms of its function for various system of human body.	**1,2,8**

SEMESTER – II									
Course Title	**BIOCHEMISTRY**								
Course code	**23BPTO124R**	**Total Credits: 2**	**L**	**T**	**P**	**S**	**R**	**O/F**	**C**
		Total Hours: 30T	**2**	**0**	**0**	**0**	**0**	**0**	**2**
Pre-Requisite	**NIL**	**CO-REQUISITE**	**Anatomy and Physiology**						
Programme	**Bachelor in Physiotherapy**								
Semester	**2nd**								
Course Objectives	1. To develop the concept of metabolism. 2. To describe the metabolic pathways of different biomolecules. 3. To illustrate clinical correlation and diagnosis of biochemical disorder.								
CO1	Acquaint with the basic principle and importance of metabolism in daily activities of life.								
CO2	Develop the concept of metabolism of various chemical substances of the body.								
CO3	Determine the synthesis and breakdown of carbohydrates, lipids, nucleic acids, proteins and their regulation.								
CO4	Comprehend the concept of human biochemistry.								
CO5	Understand the basis of clinical correlation and diagnosis of biochemical disorder.								

Unit-No.	Content	Contact Hour	Learning Outcome	KL
I	**Introduction to metabolism and its type.** **Carbohydrate Metabolism** Introduction, Glycolysis – Aerobic, Anaerobic Citric acid cycle, Substrate level phosphorylation. Glycogen metabolism – Glycogenesis, Glycogenolysis, Metabolic disorders glycogen, Gluconeogenesis, Cori cycle, Hormonal regulation of glucose, Glycosuria, Diabetes mellitus	**7 hrs**	● They would build knowledge about metabolism and how carbohydrates are used by the body via different metabolic process like glycolysis, gluconeogenesis, glycogenolysis.	1,2
II	**Lipid Metabolism** Introduction to lipid metabolism, Lipolysis, Oxidation of fatty acids - oxidation of fatty acids, Lipogenesis - Denovo synthesis of fatty acids, chain elongation, desaturation, triacylglycerol synthesis, fat metabolism in adipose tissues, Ketone body metabolism: Ketone body formation (ketogenesis), utilization (ketolysis), ketosis, Rothera's test. Cholesterol metabolism: synthesis, degradation, cholesterol transport Hypercholesterolemia and its effects (atherosclerosis and coronary heart diseases) Hypocholesterolemic agents, Common hyper lipoproteinemia, Fatty liver.	**6 hrs**	● Knowledge on lipid metabolism will be gained by the students. ● They would understand the need of lipolysis, triacylglycerol synthesis, ketone bodies etc. ● They would also learn about some biochemical disease associated with lipid metabolism.	1,2
III	**Amino acid and Protein Metabolism:** Catabolism of amino acids - Introduction, transamination, deamination, Fate of ammonia, transport of ammonia, Urea cycle, specialized products formed from amino acids - from glycine, arginine, methionine, phenylalanine and tyrosine.	**5 hrs**	● They would also build concept on amino acids and protein metabolism where they will learn about urea cycle, transamination and deamination.	1,3
IV	**Acid-Base balance**: Acids, bases and buffers, pH. Buffer systems of the body, bicarbonate buffer	**6 hrs**	● They will develop concept of acid – base. ● They would develop	1,3

	system Role of lungs and kidneys in acid base balance, Acid base imbalance. **Water balance**: Water distribution in the body, Body water, water turnover, Regulation of water balance: role of ADH and thirst centre. **Electrolyte balance**: Osmolarity. Distribution of electrolytes. Electrolyte balance: Role of aldosterone, rennin angiotensin system and ANF.		the knowledge of buffering capacity of blood and understand the role of lungs and kidneys in acid- base balance.	
V	**Nucleic acids and porphyrin metabolism:** Biosynthesis of purine and pyrimidine and its breakdown; biosynthesis and degradation of heme. **Clinical Biochemistry**: Normal levels of blood and urine constituents, Relevance of Glucose levels in blood and urine, Urea, Uric acid, Creatinine, Calcium, Phosphates, pH and Bicarbonate. Liver function tests, Renal function tests.	**6hrs**	● They will learn metabolism of nucleic acid and heme. ● They will also gain knowledge about normal levels of metabolites in blood.	1,2

TEXT BOOKS:

1. "Lehninger Principles of Biochemistry" by David L Nelson and Michael M Cox

2. "Biochemistry" by U Satyanaryana and U Chakrapani

REFERENCE BOOKS:

1."HAPER'S ILLUSTRATED BIOCHEMISTRY" BY ROBERT MURRAY, DARYL K GRANNER ET AL.

2. "BIOCHEMISTRY" BY LUBERT STRYER, JEREMY M BERG, ET AL.

3. "BIOCHEMISTRY" BY DAVID E METZLER.

RELATIONSHIP BETWEEN COURSE OUTCOMES (CO) AND PROGRAMME OUTCOMES

CO PO Mapping		
SN	**Course Outcome (CO)**	**Mapped Programme Outcome**
1	Acquaint with the basic principle and importance of metabolism in daily activities of life.	**7**
2	Develop the concept of metabolism of various chemical substances of the body.	**7**
3	Determine the synthesis and breakdown of carbohydrates, lipids, nucleic acids, proteins and their regulation.	**7**
4	Comprehend the concept of human biochemistry.	**7**
5	Understand the basis of clinical correlation and diagnosis of biochemical disorder.	**7**

SEMESTER – II									
Course Title	**PSYCHOLOGY & SOCIOLOGY**								
Course code	**23BPTO125R**	**Total Credits: 2**	**L**	**T**	**P**	**S**	**R**	**O/F**	**C**
		Total Hours: 30T	**2**	**0**	**0**	**0**	**0**	**0**	**2**
Pre-Requisite	**NIL**	**CO-REQUISITE**	**NIL**						
Programme	**Bachelor in Physiotherapy**								
Semester	**2nd**								
Course Objectives	1. This course will introduce the students to basic ideas about the existing social institutions in society 2. This course will also familiarize the students with some major social problems faced by the people and what help the health workers will be of in the same 3. This paper shall also look at the role of health care professionals or medical social workers and how health and culture is related. 4.To introduce the students to the concepts related to Emotions and Intelligence. 5.To gain a better understanding of the basics and various concepts of Learning. 6.To develop an understanding of processes involved in Personality and Thinking.								
CO1	Identify And Describe The Three Levels Of Emotions Along With The Major Theories along with an insight to the concept of family and the influences.								
CO2	Analyse the concept of intelligence and its significance in human cognition and behaviour. Grasp the multidimensional nature of intelligence and its relevance in various domains of life and an understanding about Social security								
CO3	Identify the problems of the disabled and social workers and Enhance of reasoning& problem-solving strategies.								
CO4	Identify the various factors & major theories that influences the process of learning and an insight to culture and health								
CO5	Identify & describe personality and its components, along with some common defence mechanism and gain an understanding of the medical social workers.								

Unit-No.	**Content**	**Contact Hour**	**Learning Outcome**	**KL**
I	**Introduction to Psychology** a. Meaning, Nature and Scope of Psychology b. Methods: Introspection, observation, inventory, and experimental method. c. Branches : Pure psychology and applied psychology d. Psychology and Physiotherapy.	2	Students will learn about the different methods of Psychology, its branches and how it is related to physiotherapy.	1,2
	Family **a.** The family, meaning and definitions, Functions of types of family, Changing Family patterns, Influence of Family on the individual's health, family and nutrition, the effects of sickness in the family and psychosomatic disease and their importance to physiotherapy	**3**	Students will learn about family as a social institution and its importance in relation to health and well-being	1,2
II	**Growth and Development** **a.**Life span : different stages of development (Infancy, childhood, adolescence, adulthood, middle age, old age) **b**.Heredity and environment : role of heredity and environment in physical and psychological development, "Nature v/s Nuture controversy"	3	The students will understand the role of growth and development in adolescence, adulthood, middle age and old age. they will also be acquainted with the role of nature and nurture on development.	1,2
	Social Security: Social Security and social legislation in relation to the disabled	**3**	The students will understand the society and the kind of life led by the disabled as well as what is their role in	1,2

			the same	
III	**Sensation, Attention and perception** **a.** Sensation: Vision, Hearing, Olfactory, Gustatory and Cutaneous sensation, movement, equilibrium and visceral sense. **b.** Attention: Type so of attention, determinants of attention **c.** Perception: Gestalt principles of organization of perception, factors influencing perception **d.** Illusion and Hallucination: Different types.	4	The students shall learn the essence of sensation, attention and percetion on human behaviour. they will also learn about various forms of hallucination and illusion.	1,3
	Social Problems of disabled, Social Worker: Consequences of the following social problems in relation to sickness and disability remedies prevent problems. 1. Population explosion, 2. Poverty and unemployment, 3. Beggary , 4. Juvenile delinquency, 5.Prostitution, 6. Alcoholism, 7. Problems of women in employment.	**3**	The students shall learn about the various social issues faced by the disabled and social workers as well as learn about other social problems existent in society	1,3
IV	**Motivation:** a. Meaning and Nature of Motivation b. Motivation cycle c. Classification of motives	3	Students will understand the impact of motivation and its classification.	1,3
	Culture and Health: Concept of Health, Concept of Culture, Culture and Health, Culture and Health Disorders	**3**	Students will understand the inter-relationship between culture, health and health disorders	1,3
V	**Frustration and Conflict:** **a.**Meaning and Nature of Frustration and Conflict **b.**Frustration: Sources of Frustration **c.**Conflicts: Types of Conflict	3	Students will learn about the various sources of frustration and conflict along with its types.	1,2
	Social Worker: Meaning of Social Works, The role of a medical social worker	**3**	Students will learn about their responsibility as future social or health-care workers	1,2

TEXT BOOKS:

1.Giddens, Anthony, 2010, Sociology, 6th edition, Polity Press.

2.Pandit, Niraj, 2012, Sociology for Health Professionals, 2nd edition, Wolters Kluwer Press

3.Indrani, T K, Text Books of Sociology for Graduates Nurses and Physiotherapy Students, JP Brothers, New Delhi,10

4. Feldman.R.H (1996). Understanding Psychology. New Delhi: Tata McGrawhill. Morgan et al (2003). Introduction to Psychology. New Delhi: Tata Mc Grawhill

REFERENCE BOOKS:

1.Shankar Rao, C.N., 2012, Principles of Sociology with an Introduction to Social Thought, S,Chand publication

2.Haralambos, 2007, Sociology: Themes and Perspectives, Bombay: OUP.

3.Ogburn and Nimkoff, 1966, A Handbook of Sociology, New Delhi: Eurasia Publication House (pvt) Ltd.

4. Mangal, S.K (2002). Advanced Educational Psychology. New Delhi: prentice hall.

RELATIONSHIP BETWEEN COURSE OUTCOMES (CO) AND PROGRAMME OUTCOMES

CO PO Mapping		
SN	**Course Outcome (CO)**	**Mapped Programme Outcome**
1	Identify And Describe The Three Levels Of Emotions Along With The Major Theories along with an insight to the cocept of family and the influences.	**1,2,3,4,5,6,7,8**
2	Analyze the concept of intelligence and its significance in human cognition and behaviour. Grasp the multidimensional nature of intelligence and its relevance in various domains of life and an understanding about Social security	**1,2,3,4,5,6,7,8**
3	Identigy the problems of the disabled and social workers and Enhance of reasoning& problem-solving strategies.	**1,2,3,4,5,6,7,8**
4	Identify the various factors & major theories that influences the process of learning and an insight to culture and health	**1,2,3,4,5,6,7,8**
5	Identify & describe personality and its components, along with some common defence mechanism and gain an understanding of the medical social workers.	**1,2,3,4,5,6,7,8**

SEMESTER – II									
Course Title	**IMPLICIT ENGLISH**(Communicative English & Soft Skills)								
Course code	**23UBPD122R**	**Total Credits: 2**	**L**	**T**	**P**	**S**	**R**	**O/F**	**C**
		Total Hours: 60P	**0**	**0**	**4**	**0**	**0**	**0**	**2**
Pre-Requisite	**NIL**	**CO-REQUISITE**	**NIL**						
Programme	**Bachelor in Physiotherapy**								
Semester	**2nd**								
Course Objectives	1. This course will introduce the students to basic ideas about the existing social institutions in society 2. This course will also familiarize the students with some major social problems faced by the people and what help the health workers will be of in the same 3. This paper shall also look at the role of health care professionals or medical social workers and how health and culture is related. 4. To introduce the students to the concepts related to Emotions and Intelligence. 5. To gain a better understanding of the basics and various concepts of Learning. 6. To develop an understanding of processes involved in Personality and Thinking.								
CO1	1. To enable students to learn, understand different types of sentences structures. 2. To strengthen the vocabulary of the students which will help in their writing and speaking. 3. To introduce the importance of dress code in various organisations. 4. To familiarize with the 3P's(Planning, prioritizing& performing) of Time Management.								
CO2	Students will be able to analyse and transform the different type of sentences.								
CO3	Learners will be able to use language effectively.								
CO4	Importance of dress code and behavioural ethics will boost their confidence.								
CO5	They will enhance their ability to comprehend and respond effectively in various real-life communication scenarios								

Unit-No.	Content	Contact Hour	Learning Outcome	KL
I	Grammar I. Interchange of Interrogative and Assertive Sentences, Exclamatory and Assertive Sentences II. Types of Tenses Common Errors	6	Describe, illustrate the types of tenses, sentences.	1,2,3
II	Vocabulary Homonyms Homophones	6	Describe, illustrate about vocabulary	1,2,3
III	Reading Skills i. Techniques of Effective Reading Gathering ideas and information from a text	8	Describe, illustrate about reading skills	1,2,3
IV	Conflict Management	6	Describe, illustrate the type of conflict management	1,2,3
V	Time-Management Skills **i.** Introduction To Time Management, ii. Importance of Time Management, Basic Tips to Maintain Time.	8	Describe, illustrate the importance of time management.	1,2,3

Activity: Problem solving activity: A situation will be given to the students and they will have to show to handle the situation or solve the problem

TEXT BOOKS:

- EffectiveCommunication,JohnAdair,MacmillllanLtd.1997
- Language in Use, Adrian Doff and Chris Jones,CambridgePress,2006
- A Textbook of English Grammar and Composition, Adhir Debnath,BinaLibrary

REFERENCES:

- CommunicationSkillsTraining:APracticalGuidetoImprovingYourSocialIntelligence,PresentationandSocialSpeaking,IanTuhovsky,2019
- A Textbook for AECC English Communication :Interface,Dr. Kironmoy Chetia and Pranami Bania Breez MohanHazarika,January2019.

SUGGESTED READING:

- English Communication: Theory and Practice
  (2020Edition 1January 2018), Dr.Manoj Kr.Garg

RELATIONSHIP BETWEEN COURSE OUTCOMES (CO) AND PROGRAMME OUTCOMES

CO PO Mapping		
SN	**Course Outcome(CO)**	**Mapped Programme Outcome**
1	The learner will be able to analyze and use the techniques in language use.	**5,7,8**
2	Communication and behaveor al skills will boost their self-reliance.	**5,7,8**
3	Students will learn the effective and efficient utilization of the time.	**5,7,8**
4	It will strengthen their vocabulary and use of words.	**5,7,8**
5	It will give an introduction on the concept of communication, its importance and barriers.	**5,7,8**

SEMESTER – II									
Course Title	**EXTRA CURRICULAR ACTIVITIES/ CO CURRICULAR ACTIVITIES**								
Course code	**23UBEC121/ 23UBCC121**	**Total Credits: 1**	**L**	**T**	**P**	**S**	**R**	**O/F**	**C**
		Total Hours:	**0**	**0**	**0**	**4**	**0**	**0**	**1**
Pre-Requisite	**NIL**	**Anti -Requisite**	**NIL**						
Programme	**All UG Programmes**								
Semester	**First Year, Fall Semester**								
Course Objectives	It is to develop the social and soft skills and to promote a holistic development of the learners								
CO	The students will be engaged in different activities headed under different clubs namely dance, music, photography, drama, literacy, etc. The students will participate in regular club activities like workshops, competitions as per their interest and hobbies. The students will be trained to represent ADTU in various inter university, state and national level competitions. The students will be given a platform to earn from invited experts in their respective fields. The students will get an exposure of 360 degree learning methodology considering the overall growth along with the academics.								

Content

AdtU encourages a range of activities outside the regular curriculum intended to meet learner's interest, These activities are aimed to develop the social and soft skills and promote a holistic development of the learners, Keeping in mind the 360 degree learning methodology the students are engaged in different activities headed under different clubs viz. Dance, music, photography, drama, literary etc., The students are encouraged to participate in regular club activities, workshops, competitions as per their interest and hobbies, The student members of the club are trained represent AdtU in various inter University student and national level competitions, Renewed personalities are invited to conduct workshops that benefit the members and students by giving them the platform to learn from experts in the respective fields.Departmental co-curricular activities in physiotherapy focus on enhancing both academic learning and professional development within the department. These activities often include interdepartmental seminars, workshops, hands-on clinical practice, and case study discussions, where students can engage with faculty and peers. Additionally, departmental events such as physiotherapy awareness campaigns, fitness sessions, and health screenings provide opportunities for students to actively contribute to community wellness while honing their clinical and communication skills. These activities help foster a collaborative learning environment, encourage leadership, and prepare students for the demands of real-world physiotherapy practice.

TEXT BOOKS:

- Harucha E.B,Textbook of Environmental Studies, Orient Blackswan Publishing.
- Tiwari V.KATextbook of Environmental Studies, Himalaya Publishing House
- Chatwal G.R.& SharmaH. Environmental Studies, Himalaya Publishing House

REFERENCE BOOKS:

- TrivediR.K., Handbook of Environmental Laws,Rules Guidelines, Compliances and Stadards, VolIandII, Enviro Media (R)
- TrivediR.K.andP.K.Goel,Introductiontoairpollution,Techno-SciencePublication (TB)
- Agarwal,K.C.2001EnvironmentalBiology,NidiPubl.Ltd.Bikaner.BharuchaErach,TheBiodiversityofIndia,MapinPublishingPvt.Ltd.,Ahmedabad–380013,India,Email:mapin@icenet.net(R)
- BrunnerR.C.,1989,HazardousWasteIncineration,McGrawHillInc.480pClarkR.S.,MarinePollution,ClandersonPressOxford(TB)

RELATIONSHIP BETWEEN COURSE OUTCOMES (CO) AND PROGRAMME OUTCOMES

CO PO Mapping		
SN	**Course Outcome (CO)**	**Mapped Programme Outcome**
1	Able to explain the fundamentals and advances of cytology including structure and functions of cell and cell organelles.	**1,3,4**
2	Able to explain the cell cycle and cell division.	**1,2**
3	Learn and develop skills for operating microscope, preparing slides by various staining techniques	**7.9,10**
4	Apply knowledge of cellular processes to explain how cells operate and interact within living organisms.	**5,7**
5	Demonstrate a comprehensive understanding of cell structure and function.	**5,8**

SEMESTER – II									
Course Title	**EXERCISE THERAPY**								
Course code	**23BPTO211R**	**Total Credits: 6**	**L**	**T**	**P**	**S**	**R**	**O**	**C**
		Total Hours: 45T+90P	**3**	**0**	**6**	**0**	**0**	**0**	**6**
Pre-Requisite	**HUMAN ANATOMY, BIOMECHANICS OF HUMAN MOTION**	**Co-Requisite**	**NIL**						
Programme	**Bachelor in Physiotherapy**								
Semester	**3rd**								
Course Objectives	1.To introduce the students to the concepts related to introduction to exercise therapy and various methods of testing for assessment. 2.To impart the students to the concepts related to Active movement, Passive movements, Suspension therapy, Stretching, Balance, Co-ordination exercises, Individual and group Exercises								
CO1	Equipped with the principles and effects of exercise as a therapeutic modality.								
CO2	Perform the techniques in the restoration of physical function.								
CO3	Acquired with the knowledge about the principles and techniques of exercise therapy in the clinical practice.								
CO4	Choose the effective exercise therapeutic skills with strong theoretical knowledge on patients								
CO5	Comprehend manual muscle testing techniques, stretching techniques as well as the importance of aerobic exercise and their application in clinical use.								

Unit-No.	Content	Contact Hour	Learning Outcome	KL
I	**INTRODUCTION TO EXERCISE THERAPY:** The aims of exercise therapy, the techniques of exercise therapy, Approach to patient's problems, Assessment of patient's condition-Measurement of vital parameters, Starting positions-Fundamental and derived positions, Planning of treatment. **AEROBIC EXERCISE:** Definition and key terms, Physiologic response to aerobic exercise, Examination and evaluation of aerobic capacity, The exercise Programme.	**10 hours**	Understanding the major aims for learning exercise therapy and how to apply on the patients. Demonstrate an understanding of health related fitness components, endurance, flexibility and body composition.	1,2
II	**METHODS OF TESTING:** a) Goniometer- parts, types, principles, uses, Limitations of goniometry, Techniques for measurements of ROM for all peripheral joints. b) Measurement of joint range: ROM definition, Normal ROM for all peripheral joints and spine. c) Tests for neuromuscular efficiency d) Manual Muscle Testing: Introduction to MMT, Principles and aims, Indications and limitations, Techniques of MMT for group and individual muscles: Techniques of MMT for upper limbs/Techniques of MMT for lower limbs/Techniques of MMT for spine e)Anthropometric measurements: Muscle girth-Biceps, Triceps, Forearm, Quadriceps, Calf	**10 hours**	Understanding and applying the goniometry measurement for measuring the range of motion. Learning the various grades of MMT and the technique and applying it on the patients to examine the muscle power. Anthropometric measurement can be used to estimate total body fat, regional fat and fat distribution. Confirming a diagnosis of primary or secondary lung diseases with the use of PFT. Understanding the limb length and applying it to asses the limb length discrepancy(LLD)	1,2

	Static power test, Dynamic power test, Endurance test, Speed test Pulmonary function test Test for sensation Measurement of limb length: true limb length, apparent limb length, segmental limb length.			
III	**ACTIVE MOVEMENT** Types of active movements: Free exercise:Classification, Principles, Techniques, Indications, Contraindications, Effects and uses. Active assisted exercise: Principles, Techniques, Indications, Contraindications, Effects and uses. Resisted exercise: Definition, Principles, Indications and contraindications, precautions and techniques, effects and uses, Types of resisted exercises: Manual and mechanical resistance exercise, Equipment for resistance training. Isometric exercise, Dynamic exercise: Concentric and eccentric, Constant versus variable resistance, Isokinetic exercise, Open chain and closed exercise. Specific exercisere gimens: Isotonic: Delormes, Oxford, Mac Queen, Circuit Weight training Isometric:	**10 hours**	Students will learn the various free exercises , resisted, active assisted as well as isometric exercises and applying it to the clinical use for the patients to train their muscles.	1,2
IV	**PASSIVE MOVEMENTS:** Causes of immobility, Classification of Passive movements, Principles of giving Passive movements, Indications, contraindications, Effects and uses, Techniques **SUSPENSION THERAPY:** Definition, Principles, Equipment and accessories, Indications and contraindications, Benefits of suspension therapy Types of suspension therapy: Axial, Vertical, Pendular Techniques of suspension therapy for upper limb and lower lim **STRETCHING:** Definition and terms related to stretching, Tissue response towards immobilization and elongation, Determinants of stretching exercise, Effects, Inhibition and relaxation procedures, Precautions and contraindication, Techniques of stretching.	**10 hours**	By the use of passive movements, suspension therapy and stretching the students will learn the techniques of the application of it on the patients.	2,3
V	**BALANCE:** Definition, Physiology of balance: contributions of sensory systems, processing sensory information, generating motor output. Components of balance (sensory, musculoskeletal, biomechanical)	**5 hours**	By understanding the balance training and coordination exercises the students will be able to train the patients suffering from balance and coordination impairments and disability	3,4

	Impaired balance: Causes, Examination and evaluation, Activities for treating impaired balance: mode, posture, movement. Precautions . **CO-ORDINATION EXERCISES:** Anatomy and physiology of cerebellum with its pathways Definition: Co-ordination, Inco-ordination Causes for inco-ordination, Test for co-ordination: equilibrium test, non-equilibrium test Principles of co-ordination test Frenkel's exercise: uses of Frenkel's exercise, home exercise. **INDIVIDUAL AND GROUP EXERCISES:** Advantages and disadvantages, Organization and group exercises, Recreational activities and sports.			
Practical	1. Demonstrate the technique of measuring ROM using goniometry. (12 hrs) 2. Demonstrate the techniques of strengthening muscles using resisted exercises (14hrs) 3.Demonstrate the techniques for measuring limb length and body circumference.(16hrs) 4.Demonstrate the techniques for muscle stretching.(10hrs) 5.Demonstrate exercises for training co-ordination-Frenkel's exercise. (10hrs) 6.Demonstrate to use the technique of suspension therapy. (10hrs) 7.Demonstrate various techniques of active and passive movements.(10 hrs) 8.Demonstrate muscle strength using the principles and technique of MMT(8 hrs)	**90 hours**	Students wil be able to assess various discrepancies in the skeletal and muscular system and learn various exercise therapy techniques.	1,2,3 ,4,5

TEXT BOOKS:

1. Therapeutic exercise by BarbaraBandy
2. Therapeutic exercise by CarolynKisner
3. Principles of exercise therapy by M.DenaGardiner
4. Practical Exercise therapy by HollisMargaret
5. Therapeutic exercise by SydneyLitch

REFERENCE BOOKS:

1. Therapeutic exercise by Hall &Brody
2. Therapeutic exercise by Basmajjian
3. Physical Rehabilitation byo'Sullivan.
4. Therapeutic massage by Sinha.
5. Principles of muscle testing by Hislop.

RELATIONSHIP BETWEEN COURSE OUTCOMES (CO) AND PROGRAMME OUTCOMES

CO PO Mapping		
SN	**Course Outcome (CO)**	**Mapped Programme Outcome**
1	Equipped with the principles and effects of exercise as a therapeutic modality.	**1,2,3,4,5,6,7,8**
2	Perform the techniques in the restoration of physical function.	**1,2,3,4,6,7,8**
3	Acquired with the knowledge about the principles and techniques of exercise therapy in the clinical practice.	**1,2,3,5,6,7**
4	Choose the effective exercise therapeutic skills with strong theoretical knowledge on patients	**1,2,3,4,6,7,8**
5	Comprehend manual muscle testing techniques, stretching techniques as well as the importance of aerobic exercise and their application in clinical use.	**1,2,3,4,5,6,8**

SEMESTER – III									
Course Title	**ELECTRO THERAPY**								
Course code	**23BPTO212R**	**Total Credits: 6**	**L**	**T**	**P**	**S**	**R**	**O**	**C**
		Total Hours: 45T+90P	**3**	**0**	**6**	**0**	**0**	**0**	**3+3=6**
PRE-REQUISITE	**HUMAN ANATOMY, BIOMECHANICS OF HUMAN MOTION**	**CO-REQUISITE**	**NIL**						
Programme	**Bachelor in Physiotherapy**								
Semester	**3rd**								
Course Objectives	1.To introduce the students to the concepts related to **:**Medical electronics, Electric current, Therapeutic current, Nerve Muscle Physiology, Galvanic current, Faradic current, Sinusoidal Current & Biodynamic Current, Micro current & macro current, Cathodal / Anodal galvanism, HVPGS-Parameters and its uses, 2.To impart the students to the concepts related to **:**Types of electrical stimulators, Principles of application, TENS, Pain: Define pain, Pain Gate control theory in detail, Electro Magnetic Spectrum.								
CO1	Analyse principles, techniques, effects, indications, contraindications, and the dosage parameter for various indications of electrotherapeutic modalities in the restoration of physical functions								
CO2	Identify the indications, contraindications, dosage of electro therapy modalities, demonstrates the different techniques and describe their effects on various conditions.								
CO3	Categorise different types of currents and laws which will help the students to apply and learn in using the electro therapy modalities in a proper manner. And they will also learn about the physiology of nerve and muscle. They will be able to recall physics principles and laws of electricity, electro-magnetic spectrum and ultrasound.								
CO4	Apply the common electrical components such as transistors, valves, capacitors, transformers and will be able to identify such components.								
CO5	Describe the effects of environmental and man- made electro- magnetic field at the cellular level and risk factors on prolonged exposure.								

Unit-No.	**Content**	**Contact Hour**	**Learning Outcome**	**KL**
I	**Medical electronics:** Introduction Types of electricity Electronic theory of electrical charge Potential Electromotive force Capacitance Ohm's law Resistance Capacitor Rheostat Joule's law Thermoelectricity and See back effect Thomson effect Primary cell, secondary cell Magnetic effect of current Galvanometer Electricity Magnetism Electromagnetism Electromagnetic induction, v. Eddy current Transformer AC and DC motors Voltmeter and ammeter Thermo ionic valves and semiconductor devices **ELECTRIC CURRENT**	**10** **2**	In this unit the students will understand the different types of currents and laws which will help the students to apply and learn in using the electro therapy modalities in a proper manner. And they will also learn about the physiology of nerve and muscle.	1,2

	Introduction ,type of electric current ,physiologic response ,pulsed current-pulse parameters ,pulse shape, pulse intensity, method(mode), polarity, electrodes ,electrical pulse generators **THERAPEUTIC CURRENT** Classification of therapeutic currents: •AC ,DC, Interrupted DC •LFC,MFC,HFC •High voltage, low voltage •Low amperage ,High amperage •Currents causing ionic changes, currents causing thermal changes **Nerve Muscle Physiology**: Action potential, Propagation of action potential, Resting membrane potential, motor unit, Synapse, Accommodation, Stimulation of healthy muscle, Stimulation of denervated muscle, Stimulation for tissue repair.	**7**		
II	**Galvanic current**: Definition, Modifications, Physiological & Therapeutic effects of galvanic current, Indications& Contraindication, Dangers, Effects of interrupted galvanic current on normally innervated and denervated muscles and partially denervated muscles. **Faradic current**: Definition, Modifications, Techniques of application of individual, Muscle and group muscle stimulation, Physiological & therapeutic effects of faradic current, Precautions, Indications & contraindications, Dangers. Sinusoidal Current & Biodynamic Current. Micro current & macro current.	**8**	Here the students will understand the different therapeutic currents and how to use it in patients.	1,2
III	**Cathodal / Anodal galvanism**. **HVPGS**-Parameters and its uses. Types of electrical stimulators: -**NMES**-construction component -Neuromuscular diagnostic stimulator **-**Components and working principles. Principles of application: Tissue impedance, Types of electrodes,Electrode tissue interference, Size and placement of electrodes,Electrode coupling, Current flow in tissues, lowering of skin resistance.	**7**	Knowledge about anodal and cathodal galvanism and its principles which will help the students to apply it on the patients.	1,2
IV	**TENS:** Definition, Types, Conventional TENS, Acupuncture TENS, Burst TENS, Brief and intense TENS, Modulated TENS, Types of electrodes and placement, Dosage parameters, Physiological & Therapeutic effects, Indications and contraindications. **Pain**: Define pain, Pain Gate control theory in detail.	**5**	They will have an understanding about the pain control theory in human body as well as different parameters of TENS which will help them to apply it on the patients	2,3
V	**Electro Magnetic Spectrum:** **Ultrasound:** **Definition:** Frequency, Piezo electric effect, Production of US, Treatment dosage parameters, Continuous and pulsed ,intensity, US fields: Near field, Far field, Half Value distance, Attenuation, Coupling media, Thermal effects, Non thermal effects, Principles and Application of US: Direct contact, Water bag, Water bath, Solid	**6**	Students will know the use of ultrasound therapy and learn how to apply it therapeutically over a patient and also have a knowledge on the electromagnetic spectrum	3,4

	sterile gel pack method for wound, Uses, Indication and contraindication, Dangers of ultrasound, Phonophoresis.			
Practical	1.Demonstrate the techniques for patient evaluation-receiving and positioning the patient for treatment using electrotherapy, collection of materials and testing of apparatus for treatment.(12hrs) 2.Winding up procedure after any electrotherapy treatment method.(14hrs) 3. Electrical stimulation for the muscles supplied by the peripheral nerves. (16Hrs) 4. Plotting of SD curve with chronaxie and rheobase. (10hrs) 5.Demonstrate FG test. (10hrs) 6.Demonstrate treatment techniques using TENS for various regions. (14hrs) 7.Application of US for different regions-various methods of application.(14hrs)	**90**	Students will be acquinted with the various electrotherapeutic modalities and their usages in various conditions along with the required dosage. Identify the indications and contraindications of the various modalities	1,2,3,4,5,6

TEXT BOOKS:

1. Claytons Electrotherapy by Forster & Palastanga
2. Electrotherapy Explained by Low & Reed
3. Clinical Electrotherapy by Nelson

REFERENCE BOOKS:

1. Electrotherapy Evidence based practice by Sheila Kitchen
2. Physical agents by Michele Cameroon
3. Principles of Electrotherapy by Michele Cameroon

RELATIONSHIP BETWEEN COURSE OUTCOMES (CO) AND PROGRAMME OUTCOMES

CO PO Mapping		
SN	**Course Outcome (CO)**	**Mapped Programme Outcome**
1	Analyse principles, techniques, effects, indications, contraindications, and the dosage parameter for various indications of electrotherapeutic modalities in the restoration of physical functions	**1,2,3,5,8**
2	Identify the indications, contraindications, dosage of electro therapy modalities, demonstrates the different techniques and describe their effects on various conditions.	**1,2,3,4,5,6,8**
3	Categorise different types of currents and laws which will help the students to apply and learn in using the electro therapy modalities in a proper manner. And they will also learn about the physiology of nerve and muscle. They will be able to recall physics principles and laws of electricity, electro-magnetic spectrum and ultrasound.	**3,5,6,7,8**
4	Apply the common electrical components such as transistors, valves, capacitors, transformers and will be able to identify such components.	**1,2,3,4,5,6,7,,8**
5	Describe the effects of environmental and man- made electro- magnetic field at the cellular level and risk factors on prolonged exposure.	**1,2,3,4,5,6,7,8**

SEMESTER – III									
Course Title	**PHARMACOLOGY**								
Course code	**23BPTO213R**	**Total Credits: 2**	**L**	**T**	**P**	**S**	**R**	**O**	**C**
		Total Hours: 30	**2**	**0**	**0**	**0**	**0**	**0**	**2**
Pre-Requisite	**NIL**	**CO-REQUISITE**	**NIL**						
Programme	**Bachelor in Physiotherapy**								
Semester	**3rd**								
Course Objectives	1. To introduce the students to the concepts related to General Pharmacology. 2.To introduce the students to Autonomic Nervous system, Neuropharmacology, Cardiovascular Pharmacology, Cardiovascular Pharmacology, Digestion and Metabolism..								
CO1	Determine the fundamental pharmacology of commonly used drugs, their significance in overall treatment, and their role in physiotherapy								
CO2	Understand the general principles of drug action and the handling of drugs by the body.								
CO3	Recognizes how the outcome of treatment is influenced by both drug and physiotherapy factors.								
CO4	Comprehend the effects and implications of sedatives on the body								
CO5	Summarise how drugs can contribute to cardiovascular diseases and metabolism								

Unit-No.	Content	Contact Hour	Learning Outcome	KL
I	**General Pharmacology:** Introduction, Definition, Classification of drugs, Sources of drugs, Routes of drug administration, Distribution of drugs, Metabolism and Excretion of drugs Pharmacokinetics, Pharmacodynamics, Factors modifying drug response, Adverse effects.	**5**	By the end of this unit the students should know how about the basic drug administration, metabolism and drug reactions	1,2
II	**Autonomic Nervous system:** General considerations – The Sympathetic and Parasympathetic Systems, Receptors, Somatic Nervous System. Cholinergic and Anti-Cholinergic drugs, Adrenergic and Adrenergic blocking drugs, Peripheral muscle relaxants.	**6**	By the end of this unit the students should be able to discuss about the sympathetic and parasympathetic nervous systems, drug actions an rerlaxants	1,2
III	Neuropharmacology: Sedative – Hypnotic Drugs: Barbiturates, Benzodiazepines Antianxiety Drugs: Benzodiazepines, Other Anxiolytics Drugs used in the treatment of Mood Disorders: Monoamine Oxidase Inhibitors, Tricyclic Antidepressants Atypical Antidepressants, Lithium, Antipsychotic drugs	**8**	By the end of this unit the students should know how about the sedatives group of drugs their actions and reactions	1,2
IV	Cardiovascular Pharmacology: Drugs used in the treatment of Heart Failure: Digitalis, Diuretics, Vasodilators, ACE inhibitors Antihypertensive Drugs: Diuretics, Beta Blockers, Calcium Channel Blockers, ACE Inhibitors, Central Acting Alpha Agonists, Peripheral Alpha Antagonists, Direct acting Vasodilators. Antiarrhythmic Drugs	**8**	By the end of this unit the students should know about the drugs applicable for the cardiovascular systems also about their actions and reactions	2,3
V	Digestion and Metabolism: Gastrointestinal Pharmacology: Peptic Ulcer Disease, Constipation, Diarrhea Drugs used in the treatment of Diabetes Mellitus: Insulin, Oral Hypoglycemic	**3**	By the end of this unit the students should be able to discuss about the drugs used in gastrointestinal system with their actions and reactions	3,4

TEXTBOOKS:

1. Lippincott's Pharmacology.
2. Essential of Medical Pharmacology by Tripathi
3. Text book of Medical Pharmacology by Padmajaudaykumar

REFERENCE BOOKS:

1. Pharmacology by N.Murugesh
2. Pharmacology & Pharmacotherapeutics by Sadoskar

RELATIONSHIP BETWEEN COURSE OUTCOMES (CO) AND PROGRAMME OUTCOMES

CO PO Mapping		
SN	**Course Outcome (CO)**	**Mapped Programme Outcome**
1	Determine the fundamental pharmacology of commonly used drugs, their significance in overall treatment, and their role in physiotherapy	**1,2,3,4,5,6,7,8**
2	Understand the general principles of drug action and the handling of drugs by the body.	**1,3,4,5,6,7,8**
3	Recognizes how the outcome of treatment is influenced by both drug and physiotherapy factors.	**1,3,4,5,6,7,8**
4	Comprehend the effects and implications of sedatives on the body	**1,2,3,4,5,6,7,8**
5	Summarise how drugs can contribute to cardiovascular diseases and metabolism	**1,2,3,4,5,6,7,8**

SEMESTER – III									
Course Title	**MICROBIOLOGY & PATHOLOGY**								
Course code	**23BPTO214R**	**Total Credits: 4**	**L**	**T**	**P**	**S**	**R**	**O/F**	**C**
		Total Hours: 60 hrs	**4**	**0**	**0**	**0**	**0**	**0**	**4**
Pre-Requisite	**NIL**	**Co-Requisite**	**NIL**						
Programme	**Bachelor in Physiotherapy**								
Semester	**3rd**								
Course Objectives	1.To introduce the students to the concepts related to the microorganisms , immune system and some important disease caused by microorganisms 2. The objective of this course is that after lectures, demonstration, the students will be able to understand the importance of microbiology in health science. **3.** The students will have taught about the cell injury, inflammation and repair, hemodynamic disorders and introduction of haematology.								
CO1	Designed to have a depth knowledge of importance of medical microbiology in human life. Also understand the concept of different kinds of microbial infection and antimicrobial drugs.								
CO2	Understand the different terminology commonly used in medical microbiology area, able to comprehend the concept of virus and of clinically important viral infection								
CO3	Understand the knowledge of antibiotics and aseptic techniques, understand the knowledge of fungi and medically important group of fungi								
CO4	Denote the concept of immune system and its mechanism, attainment of concept regarding laboratory diagnosis of microbial infection.								
CO5	Ability to get the concept of bacteria and bacterial infection, gain the insight about the central nervous system causing microbial infection.								

Unit-No.	Content	Contact Hour	Learning Outcome	KL
I	Definitions: Infection, parasite, host, vector, fomite, contagious disease, infectious disease, epidemic, endemic, pandemic, Zoonosis, Epizootic, Attack rate. Routes of infection and spread; Endogenous and Exogenous infections; source at reservoir of infections. Bacterial cell, Morphology limited to recognizing bacteria in clinical samples. Shape, motility and arrangement, Structures, which are virulence General Properties: Basic structure and broad classification of viruses, Pathogenesis and pathology of viral infections. Principles of laboratory diagnosis of viral diseases, List of commonly used antiviral agents	**3hours**	Students will have a idea about the different terminology used in microbiology and concept of bacteria	1,2
	Nutritional disorders: ➢ Marasmus, Kwashiorkor ➢ Vitamin deficiency disorders	**3**	Students will have a idea concept of virus and the prophylaxis of vial infection	
	Respiratory system: Pneumonia, Bronchitis, Bronchiectasis, Asthma, Tuberculosis, Lung carcinoma, Lung diseases.	**2**	Students will have a basic knowledge regarding to the Environmental and Nutritional disorders	
	Cardiovascular pathology: Heart diseases: ➢ Vascular diseases ➢ Rheumatic heart disease Ischemic Heart Disease:			
	Introduction and scope of Pathology; Subdivisions of Pathology, techniques for studying Pathology. **Cell Injuries** ➢ Important Aspects of Normal Cell Structure ➢ Reversible Cell Injury	**2**	Students will have a basic concept on pathology	

	➢ Irreversible Cell Injury ➢ Pigments.			
II	Basic principles of immunity& immune-biology: lymphoid organs and tissues, Immunity and its types, Antigen, Antibodies, antigen and antibody reactions with relevance to pathogenesis and serological diagnosis.	**4hrs**	Students will have a better knowledge regarding immune system	1,2
	Inflammation and Repair ➢ Inflammation: Definition and signs of inflammation. ➢ Types– Acute and chronic inflammation. ➢ Acute inflammation–Causes, morphological patterns and outcome. ➢ Chronic inflammation–Causes, morphology and examples. ➢ Regeneration and repair–Mechanism of cutaneous wound healing. -Factors affecting wound healing. General properties of Fungi, classification based on disease, superficial, subcutaneous, deep mycosel opportunistic infections including Mycotoxins, systemic mycoses, General principles of fungal diagnosis, Rapid diagnosis, Method of collection of samples, Antifungal agents. **Hematology:** ➢ Collection of blood ➢ bonemarrow, ➢ Hematopoiesis ➢ Anemia: Classification, clinical features and lab diagnosis. Iron deficiency anemia, ➢ Hemolytic anemias: Classification and investigation. Hereditary ➢ Thalessemia, sickle cell anemia, Spherocy to sis and enzyme eficiencies. ➢ Pancytopenia-Aplastic ➢ Hemostatic disorders, vascularand platelet disorders Coagulopathies-inherited, acquired with lab diagnosis. ➢ Leukocytic disorders: Leukocytosis, Leukemoid reaction, ➢ Leukopenia.Leukemia: Classification, and diagnosis. Blood transfusion: grouping and cross matching, transmissible infections including HIV and HEPATITIS	**3** **4** **3**	Students will have a basic idea of inflammation and healing after injured Students will have a gain knowledge of fungi and diagnostic method of fungal infection Students will have a well concepts of hematology, anaemia	
III	Morphology, classification according to pathogenicity, mode of transmission, methods of prevention, collection and transport of samples for laboratory diagnosis, interpretation of laboratory reports Staphylococci, Streptococci & Pneumococci Mycobacteria: Tuberculosis, M. leprae, Enterobacteriaceae	**4hours**	Students will have a better understanding regarding common skin and Respiratory tract causing infection	1,2
	Hemodynamic Disorder, Thromboembolic Disease Shock ➢ Hyperemia/Ischemia and Hemorrhage ➢ Edema- ➢ Thrombosis and Embolism ➢ Infraction.	**5**	Students will have a concept of understanding regarding different types of Hemodynamic disorder	

	➢ Shock Streptococcal infections: Rheumatic fever and Rheumatic heart disease. Pyrexia on unknown origin Poliomyelitis ,Hepatitis , HIVinfections **Alimentarytract:** ➢ Oralpathology: ulcers, carcinoma, oral cavity diseases and tumour of salivary gland and esophagus, esophagus in flammatory, functional disorders and tumours. Pancreatitis and pancreatic tumours: exocrine and endocrine Salivary gland tumours. **Hepato-Biliary Pathology**: Jaundice: types, aetio-pathogenesis and diagnosis. Hepatitis: acute, chronic, and neonatal. Alcoholic liver	**4** **2**	Students will have a better understanding regarding common bacterial and viral disease. Students will have a better understanding regarding different forms of diseases in alimentary tract	
IV	V. cholera and other medically important vibrois, Campylobacters and Helicobacters, Pseudomonas, Bacillus anthracis,	**3 hours**	Students will have a better understanding regarding some common important bacteria responsible for food poisoning	2,3
	Adaptation of Growth Disturbances& Differentiation ➢ Atrophy ➢ Hypertrophy ➢ Hyperplasia ➢ Metaplasia **Neoplasia** ➢ Nomenclature ➢ Carcinogenic Agents ➢ Tumors Meningitis, Central nervous System infections, Pelvic inflammatory disease. **Musculoskeletal system**: Osteo-myelitis: Acute, Chronic, Tuberculous, Mycetoma. Tumoursclassification:Benign,Malignant,MetastaticandSynovialsarcoma. Arthritis: Suppurative, Rheumatoid, Osteoarthritis, Gout. **Lymphatic system:** ➢ Diseases of the gallbladder: Cholecystitis, Cholelithiasis, Carcinoma. Lymphadenitis-nonspecific and granulomatous ➢ Causes of lymphnodeen largements Reactivehyperplasia, primary tumours-hodgkin's and nonhodgin's lymphomas, metastatic tumours.	**3** **2** **4**	Students will have a basic of pathology regarding to growth disturbance & differentiation Students will have a gain knowledge regarding some common central nervous infection causing microbes Students will have a basic idea of tumours, arthritis, Rheumatoid and lymphatic system diseases	
V	Sterilization, disinfection and universal precautions in relation to patient care and disease prevention, Definition of asepsis, sterilization, disinfection Antimicrobials: Mode of action, , resistance spectrum of activity.	**2 hours**	Students will have a better understanding regarding safety measures of health care organization and labouratory	3,4
	Introduction of Hematology ▯ Blood–formation, composition ▯ Hematopoiesis, stem cells, formed elements and their functions ▯ Anticoagulants Instrumentations in pathology laboratory	**2**	Students will have understood about the haematology, under this collection of blood, Anticoagulants	

	Malaria , Filariasis Zoonotic diseases, Urinary tract infections **Endocrine pathology**: Diabetes mellitus: types, pathogenesis, pathology, laboratory diagnosis. Non neoplastic lesions of thyroid. ➢ Iodine deficiency goiter, Auto immune thyroiditis, Thyroid toxicosis, Myxedema, Hashimoto's thyroiditis, **Dermatopathology:** ➢ Skin tumours: Squamos cell carcinoma, Basal cell carcinoma, Melanoma. **Neuropathology:** Inflammations and Infections: TB Meningitis, Pyogenic Meningitis, Viral Meningitis and BrainAbscess.CNSTumours,Astrocytoma,Neuroblastoma ,Meningioma,Medulloblastoma	**4**	Students will have a better understanding regarding different forms of non-neoplastic lesions of thyroid, skin tumours and neuropathology	

Text Book:

1. Text book of Microbiology by Anantha Narayanan
2. Microbiology by Baveja

Reference book:

1. Text book of microbiology byChakraborty
2. Essential of Medical Microbiology by Apurba Kumar Sastry and Sandhya Bhat K
3. Immunology by Kuby
4. Pathology–Harsh Mohan
5. Pathologic Basis of Disease-Robbin and Cotran
6. Textbook of Medical Laboratory Technology PrafulB.Godkar, DarshanPGodkar

RELATIONSHIP BETWEEN COURSE OUTCOMES (CO) AND PROGRAMME OUTCOMES

CO PO Mapping		
SN	**Course Outcome (CO)**	**Mapped Programme Outcome**
1	Designed to have a depth knowledge of importance of medical microbiology in human life.	**1,2,3,4,5,6,7,8**
2	Understand the different terminology commonly used in medical microbiology area.	**1,2,3,4,5,6,7,8**
3	Understand the knowledge of antibiotics and aseptic techniques.	**1,2,3,4,5,6,7,8**
4	Denote the concept of immune system and its mechanism	**1,2,3,4,5,6,7,8**
5	Ability to get the concept of bacteria and bacterial infection.	**1,2,3,4,5,6,7,8**

SEMESTER – III									
Course Title	**BIOSTATISTICS AND RESEARCH METHODOLOGY**								
Course code	**23BPTO215R**	**Total Credits: 4**	**L**	**T**	**P**	**S**	**R**	**O**	**C**
		Total Hours: 70	**4**	**0**	**0**	**0**	**0**	**0**	**4**
Pre-Requisite	**NIL**	**CO-REQUISITE**	**NIL**						
Programme	**Bachelor in Physiotherapy**								
Semester	**3rd**								
Course Objectives	1. To introduce the students to the concepts related to-Introduction to Research methodology, Research problem, Research design, Sampling Design, Measurement & scaling techniques. 2. To introduce the students to the concepts related to-advanced statistic al science and its applications to problems of human health and diseases.								
CO1	This course will introduce to the student the basic research methodology, statistical concepts: methods of statistical analysis and interpretation of data.								
CO2	The student will know how to apply methods from basic statistics and research methods for different study types.								
CO3	Develop the ability to apply methods while working on a research project work.								
CO4	Gain knowledge of the basic concepts of biostatistics and its need for professional practice and research.								
CO5	Describe and over view the design and methodology of an experiment or survey, demography and sampling and interpretation of data, tabulation and the graphical representation.								

Unit-No.	Content	Contact Hour	Learning Outcome	KL
I	**Introduction to Research methodology:** Meaning of research, objectives of research, Motivation in research, Types of research & research approaches, Research methods vs methodology, Criteria for good research, Problems encountered by researchers in India. **Research problem:** Statement of research problem. Statement of purpose and objectives of research problem, Necessity of defining the problem.	**8**	Have an overall idea about the research methods, how to use it in medical research and about the research problem.	1,2
II	**Research design:** Meaning of research design, Need for research design, Features for good design, Different research designs, Basic principles of research design **Methods of data collection:** ● Collection of primary data ● Collection of data through questionnaire & schedule Difference between questionnaire & schedule	**6**	Understanding the purpose and objectives of research design and how to collect the data for research.	1,2, 3
III	Measurement & scaling techniques: Measurement in research-Measurement scales, sources of error in measurement, Technique of developing measurement tools, Meaning of scaling, it's Classification. Important scaling techniques. **Processing & analysis of data**: Processing operations, problems in processing, Types of analysis, Statistics in research, Measures of central tendency, Dispersion, Asymmetry, relationship	**3** **5**	Students will know about the Different measurement scales and its uses for the research studies	2,3, 4,5
IV	**Testing of hypothesis:** What is hypothesis? Basic concepts concerning Testing of hypothesis, Procedure of hypothesis testing, measuring the power of hypothesis test, Tests of hypothesis, limitations of the tests of hypothesis. **Computer technology:** Introduction to Computers, computer application in research, computers & researcher.	**5** **5**	Have an understanding about the importance of statistics in the research studies and in physiotherapy its variables and measurement scales	1,2, 3,4
V	**Introduction:** Meaning, definition, characteristics of statistics., Importance of the study of statistics, Branches of statistics, Statistics and health science including physiotherapy, Parameters and Estimates, Descriptive and inferential statistics,	**6**	Have an idea on the graphical representation and use it while doing the	3,4, 5

	Variables and their types, Measurement scales. **Tabulation of Data:** Basic principles of graphical representation, Types of diagrams – histograms, frequency polygons, smooth frequency polygon, cumulative frequency curve, Normal probability curve. **Measure of Central Tendency:** Need for measures of central Tendency, Definition and calculation of mean – ungrouped and grouped, Meaning, interpretation and calculation of median ungrouped and grouped., Meaning and calculation of mode, Comparison of the mean, median and mode, Guidelines for the use of various measures of central tendency. **Probability and Standard Distributions:** Meaning of probability of standard distribution, The binominal distribution, The normal distribution, Divergence from normality – skewness, kurtosis. **Sampling techniques:** Need for sampling - Criteria for good samples, Application of sampling in community, Procedures of sampling and sampling designs errors, Sampling variation and tests of significance. Parametric and non-parametric tests.	**7** **10** **5**	research studies	

TEXT BOOKS:

1. Elements of Health Statistics:Rao.N.S.N
2. An introduction of Biostatistics: SunderRao.P.S.S.
3. Methods in Bio-Statistics 6th Edn. 1997: B.K.Mahajan
4. Biostatistics: A manual of Statistics Methods: K. VisweswaraRao
5. Elementary Statistics 1stEdn, 1990. In Medical Workers: InderbirSingh

REFERENCE BOOKS:

1. Statistics in Psychology and education: Great and Henry.
2. An Introduction to Gupta C.B. Statistical Methods, 1972: Ram Prasad &Sons.
3. Basic Statistics, 3rdEdn.:Simpsory G. Kaftha.P.
4. Research; Principles and Methods:L Denise F.Poli&Hungler.
5. Fundamentals of Research, 4th Edn.: David J.fox.

RELATIONSHIP BETWEEN COURSE OUTCOMES (CO) AND PROGRAMME OUTCOMES

CO PO Mapping		
SN	**Course Outcome (CO)**	**Mapped Programme Outcome**
1	Describe the basic research methodology, statistical concepts	**1,2,3**
2	Apply the methods from basic statistics and research methods for different study types.	**1,2,3**
3	Develop the ability to apply methods while working on a research project work.	**1,2,3**
4	Gain knowledge of the basic concepts of biostatistics and its need for professional practice and research.	**1,2,3**
5	Describe and over view the design and methodology of an experiment or survey, demography and sampling and interpretation of data, tabulation and the graphical representation.	**1,2,3**

SEMESTER – III									
Course Title	**ENGLISH LANGUAGE FOR EXCELLENCE** (Communicative English &Soft Skills)								
Course code	**23UBPD212R**	**Total Credits: 2**	**L**	**T**	**P**	**S**	**R**	**O**	**C**
		Total Hours:	**0**	**0**	**4**	**0**	**0**	**0**	**2**
Pre-Requisite	22UBPD122R Implicit English	**CO-REQUISITE**	**NIL**						
Programme	**Bachelor in Physiotherapy**								
Semester	**3rd**								
Course Objectives	1. To enable students to learn, understand and practice transformation of sentences, uses of correct preposition. 2. To augment the writing skills in different areas including CV and cover letter writing. 3. To boost productivity and performance at work, which assists in the achievement of professional goals. 4. To evaluate the required attributes in a candidate.								
CO1	Practice of grammar will strengthen their speaking and writing skills.								
CO2	Learners will be able to use the skills in their professional communication.								
CO3	It will enable to deal with thoughts, and emotions in a productive way.								
CO4	The different attributes will develop the students' ability to cope up in professional environment								
CO5	Assess behaviors, thoughts, and emotions in a conscious and productive way								

Unit-No.	Content	Contact Hour	Learning Outcome	KL
I	Grammar a. Use of Prepositions b. Tag questions	6	Explain use of prepositions.	1,2, 3
II	Grammar I. Active and Passive Voice ii. Direct and Indirect Speech	8	Describe active, passive voice and direct & indirect speech.	1,2, 3
III	Writing Skills i. The Basics of Writing; avoid ambiguity and vagueness ii. Paragraph Writing iii. Resume, CV and Cover Letter	8	Describe writing skills.	1,2, 3
IV	Self-Management Skills i. SWOT Analysis ii. Goal Setting iii. Personal Hygiene	8	Describe, and explain self-management skills.	1,2, 3
V	Non-Verbal Communication-Sciences of Body Language i. What is Non-Verbal Communication& Body Language, ii. Types of Body Language, iii. Importance and Impact of Body Language, iv. Types of Communication through Body Language, Body Language Do's and Don'ts, Doubt Clearing Session Basic Tips to Maintain Time.	10	Describe, and explain Non-Verbal Communication-Sciences of Body Language.	1,2 , 3

TEXT BOOKS:

T1: Lata, P.,,S.(2015).Communication Skills, Second Edition. India: Oxford University Press.
T2: Barrett, Grant. 2016. Perfect English Grammar: The Indispensable Guide to Excellent Writing and Speaking, Zephyros Press.
T2: Mc Dowell, Gayle Laakmann. 2008. Cracking the Coding Interview (Indian Edition).

REFERENCE BOOKS:

R1: Zinsser, William. (2006)On Writing Well: The Classic Guide to Writing Non-fiction, Harper Perennial
R2: Lacinai, Antonio. (2016)Understanding Body Language:51 gestures and what they signal, Books on Demand.

RELATIONSHIP BETWEEN COURSE OUTCOMES (CO) AND PROGRAMME OUTCOMES

CO PO Mapping		
SN	**Course Outcome**	**Mapped Programme Outcome**
1	Understand prepositions and tag questions to analyze and correct grammatical structures in sentences.	5,7,8
2	Analyse active and passive voice, and transform direct into indirect speech.	5,7,8
3	Comprehend the writing skills through various techniques of language use.	5,7,8
4	Apply SWOT analysis and goal-setting techniques to evaluate personal and professional development strategies	5,7,8
5	Assess behaviours, thoughts, and emotions in a conscious and productive way.	5,7,8

SEMESTER – III									
Course Title	**BASIC ACCLIMATIZING SKILLS (BAS)**								
Course code	**23UULS211R**	**Total Credits: 1**	**L**	**T**	**P**	**S**	**R**	**O**	**C**
		Total Hours: 30P	**0**	**0**	**2**	**0**	**0**	**0**	**1**
Pre-Requisite	**NIL**	**CO-REQUISITE**	**NIL**						
Programme	**Bachelor in Physiotherapy**								
Semester	**3rd**								
Course Objectives	1. To impart knowledge of the fundamentals of Hospitality industry and its applications. 2. Students will be able to familiarize with the cooking equipment & Utensils. 3.Students will be able to handle different modes of reservations								
CO1	Students will have basic knowledge of cooking methods.								
CO2	Students will gain the knowledge of organizing & Cleaning of Rooms.								
CO3	Students will be able to gain the travel management concept.								
CO4	Students will be able to acquire the knowledge of basic house hold samenities for day-to-day use								
CO5	Students will develop essential life skills for managing daily household tasks efficiently								

Unit-No.	Content	Contact Hour	Learning Outcome	KL
I	**Introduction to Accommodation Management** • Telephone handling technique • Organizing of Rooms. • Cleaning agents. • Cleaning equipment and uses. • Bed making Process.	8	Introduction to skills	1,3,5
II	**Fundamentals of Cooking** ● Definition of cookery–Aim & Objectives of cooking. ● Use of basic Cooking equipment ● Personal Hygiene and Safety ● Use of Fire & Fuels	8	Utility of Cooking instruments along with safety and proper utility of fire and fuels during cooking	1,3,5
III	**Methods of Cooking** □ Different Cuts. □ Use of Herbs and Spices. □ Basic Food and Beverage Preparation. □ Regional food Habits.	8	Methods of cooking along with the utility of herbs and spices along with the regional food habits	1,3,5
IV	**Forms &Format's** □ C –form □ Reservation form □ Registration form □ Passport Application form □ Legal Rent Agreement	8	A brief overview about the different forms and proper filling up of these forms	1,3,5,
V	**Basics of Travel Management & Hospitality** Introduction to travel management Types of accommodations (Hotels, Hostels, B&Bs, etc.)	**6**	Understanding travel management, different types of accommodations, and essential customer service skills in the hospitality industry	1,3,5

Text Books:

1. Arora K(2011).Theory of cookery, Frank brothers & company (pub) pvt ltd –New Delhi.
2. Bruce H.Axler, Carol A. Litrides (2010) Food and Beverage Service Volume 1 of Wiley Professional Restauranteur, Guides.
3. Mohammed Zulfikar (2010)-Introductions to Tourism and Hotel Industry Introduction to Tourism and Hotel Industry. Vikas Publishing.
4. Sudhir Andrews (2013)Food and Beverage Service: A Training Manual, Tata Mc Graw Hill,2013

RELATIONSHIP BETWEEN THE COURSE (COs) AND PROGRAMME OUTCOMES (POs)

CO PO Mapping		
Sl No	**Course Outcomes(CO)**	**Mapped Programme Outcomes**
1	Students will have basic knowledge of cooking methods.	4,5
2	Students will gain the knowledge of organizing & Cleaning of Rooms.	6,7
3	Students will be able to gain the travel management concept	4,5
4	Students will be able to acquire the knowledge of basic Household's amenities for day-to-day use.	3,4
5	Students will develop essential life skills for managing daily household tasks efficiently	4,6

SEMESTER – III									
Course Title	**EXTRA CURRICULAR ACTIVITIES/CO-CURRICULAR ACTIVITIES**								
Course code	**23UBEC211R/ 23UBCC211R**	**Total Credits: 1**	**L**	**T**	**P**	**S**	**R**	**O**	**C**
		Total Hours:	**0**	**0**	**0**	**4**	**0**	**0**	**1**
Pre-Requisite	**NIL**	**CO-REQUISITE**	**NIL**						
Programme	**Bachelor in Physiotherapy**								
Semester	**3rd**								
Course Objectives	It is to develop the social and soft skills and to promote a holistic development of the learners								
CO	The students will be engaged in different activities headed under different clubs namely dance, music, photography, drama, literacy, etc. The students will participate in regular club activities like workshops, competitions as per their interest and hobbies. The students will be trained to represent ADTU in various inter university, state and national level competitions. The students will be given a platform to earn from invited experts in their respective fields. The students will get an exposure of 360 degree learning methodology considering the overall growth along with the academics.								
Content									
AdtU encourages a range of activities outside the regular curriculum intended to meet learner's interest, These activities are aimed to develop the social and soft skills and promote a holistic development of the learners, Keeping in mind the 360 degree learning methodology the students are engaged in different activities headed under different clubs viz. Dance, music, photography, drama, literary etc., The students are encouraged to participate in regular club activities, workshops, competitions as per their interest and hobbies, The student members of the club are trained represent AdtU in various inter University student and national level competitions, Renewed personalities are invited to conduct workshops that benefit the members and students by giving them the platform to learn from experts in the respective fields.									

SEMESTER – IV									
Course Title	**EXERCISE THERAPY**								
Course code	**23BPTO221R**	**Total Credits: 6**	**L**	**T**	**P**	**S**	**R**	**O**	**C**
		Total Hours: 45T+90P	**3**	**0**	**6**	**0**	**0**	**0**	**6**
Pre-Requisite	**Human Anatomy, Biomechanics of Human Motion**	**Co-Requisite**	**NIL**						
Programme	**Bachelor in Physiotherapy**								
Semester	**4th**								
Course Objectives	1. This course offers students a lifespan approach to physical fitness, performance and health to prepare them for a career in the physical therapy field. 2. The exercise science majorly prepares students for a variety of possible careers in athletic training, physical therapy, fitness and sports, education, sport science and coaching such occupation include aerobics instructor, cardiopulmonary rehabilitation specialists, exercise physiologist, occupational physiologist, personal trainer and conditioning specialist and more.								
CO1	Equipped with the principles and effects of proprioceptive neuromuscular facilitation and relaxation technique.								
CO2	Apply the techniques of massage and functional re-education and manual therapy including peripheral joint mobilization.								
CO3	Acquire the knowledge about the techniques of breathing exercises and hydrotherapy, posture and gait.								
CO4	Acquire the skill of assessment of isolated and group muscle strength and the techniques of MMT and mobilization.								
CO5	Describe the pattern of normal and abnormal movements of various joint activities.								

Unit-No.	**Content**	**Contact Hour**	**Learning Outcome**	**KL**
I	**PRO PRIOCEPTIVE NEURO MUSCULAR FACILITATION:** Definitions and goals **Basic neurophysiologic principles of PNF:** Muscular activity, Diagnostic patterns of movement: upper limb and lower limb **Procedure:** Components of PNF Techniques of facilitation: **Mobility:** Contract relax, Hold relax, Rhythmic initiation **Strengthening:** Slow reversal, Repeated contractions, Timing for emphasis, Rhythmic stabilization **Stability:** Alternating isometric, Rhythmic stabilization Skill: Timing for emphasis, resisted progression Endurance: Slow reversal, Agonist reversal **RELAXATION:** Definitions: Muscle tone, Postural tone, Voluntary Movement, Pathological tension in muscle, Stress mechanics, Types of stress, Effect of stress on body, Indications of relaxation, Methods and techniques of relaxation, Principle and uses: General, local, Jacobson's, Mitchel's, additional methods.	**10**	Students will learn the basic PNF techniques and learn how to use it on the patients with the PNF patterns and methods Have a knowledge and understanding about the relaxation methods and the muscles acting during stress and how to overcome stress with the use of relaxation techniques.	1,2
II	**MASSAGE:** Introduction, history and origin, definition, therapeutic effects, contrain dications, classification **FUNCTIONAL RE-EDUCATION:**	**5**	Understanding of the therapeutic massage techniques and the re-education methods for the patients	1,2,3

	Mat exercises, Lying to sitting: Activities on the mat/bed, Movement and stability at floor level Sitting activities and gait Lower limb and upper limb activities			
III	**MANUAL THERAPY AND PERIPHERAL JOINT MOBILISATION:** Principles, Grades, Indications and Contraindications, Effects and uses-Maitland, McKenzie, Mulligan Biomechanical basis for mobilization, Techniques of mobilization for upper limb, lower limb, spine ,Precautions.	**10**	Learning the grades of mobilisation postulated by different people and applying them on the patients therapeutically.	1,2
IV	**POSTURE:** Definition, Active and Inactive postures, Postural mechanism, Patterns of posture, Principles of re-education: Corrective methods and techniques, Patient education. **LOCOMOTION:** Gait, normal gait analysis, pathological gaits, gaits training Staircase climbing Training with supportive aids Walking aids – principles – selection – training – crutch walking – cane walking - Pre-crutch training	**10**	They will leran the different postural mechanisms and the muscles acting on it. They will also have an idea about the gait patterns and walking aids and apply them to mobilise the patients.	2,3
V	**HYDROTHERAPY:** Definitions, Goals and Indications, Precautions and contraindications, Properties of water, Uses of Special equipment, techniques, Effects and uses, merits and demerits **BREATHING EXERCISES ,POSTURAL DRAINAGE, THORACIC MOBILITY EXERCISE, COUGHING AND ADDITIONAL TECHNIQUES TO FACILITATE COUGH AND AIRWAY CLEARANCE** Principle techniques, effect – merits /demerits	**10**	Basics of hydro therapy its goals and use it therapeutically for treatment purpose. Also different breathing patterns and airway clearance techniques which will help the students to apply practically	3,4
Practical	The students of exercise therapy are to be trained in Practical Laboratory work for all the topics discussed in theory. The student must be able to evaluate and apply judiciously the different methods of exercise therapy techniques on the patients. They must be able to: 1. Breathing exercises and postural drainage various positions. (10hrs) 2. Demonstrate the techniques of massage manipulations. (10hrs) 3. Demonstrate the techniques for functional re-education. (14hrs) 4. Assess and evaluate posture and gait. (12hrs) 5. Demonstrate the PNF techniques. (14hrs) 6. Demonstrate mobilization of individual joint regions. (15hrs) 7. Assess and train gait using walking aids. (15hrs)	**90 hours**	Students will be able to demonstrate various exercise therapy techniques in various conditions.	1,2,3, 4,5,6

TEXT BOOKS:

1. Therapeutic exercise by Barbara Bandy
2. Therapeutic exercise by Carolyn Kisner
3. Principles of exercise therapy by M. Dena Gardiner
4. Practical Exercise therapy by Hollis Margaret
5. Therapeutic exercise by Sydney Litch

REFERENCE BOOKS:

1. Therapeutic exercise by Hall &Brody
2. Therapeutic exercise by Basmajjian
3. Physical Rehabilitation byo'Sullivan.
4. Therapeutic massage by Sinha.
5. Principles of muscle testing by Hislop.

RELATIONSHIP BETWEEN COURSE OUTCOMES (CO) AND PROGRAMME OUTCOMES

CO PO Mapping		
Sl No	**Course Outcomes(CO)**	**Mapped Programme Outcomes**
1	Equipped with the principles and effects of proprioceptive neuromuscular facilitation and relaxation technique.	**1,2,3,5,6,7,8**
2	Apply the techniques of massage and functional re education and manual therapy including peripheral joint mobilization.	**1,2,3,4,6,8**
3	Acquire the knowledge about the techniques of breathing exercises and hydrotherapy, posture and gait.	**1,2,3,5,6,8**
4	Aquire the skill of assessment of isolated and group muscle strength and the techniques of MMT and mobilization.	**1,2,3,4,5,7**
5	Describe the pattern of normal and abnormal movements of various joint activities.	**1,2,4,5,8**

SEMESTER – IV									
Course Title	**ELECTRO THERAPY**								
Course code	**23BPTO222R**	**Total Credits: 6**	**L**	**T**	**P**	**S**	**R**	**O**	**C**
		Total Hours: 45T+90P	**3**	**0**	**6**	**0**	**0**	**0**	**6**
Pre-Requisite	**Human Anatomy, Biomechanics Of Human Motion**	**CO-REQUISITE**	**NIL**						
Programme	**Bachelor in Physiotherapy**								
Semester	**4th**								
Course Objectives	1. To introduce the students to the concepts related to Ionization/Iontophoresis, Electro-diagnosis, SD curve, Pulsed electro-magnetic energy. 2. To impart students to the concepts related to Interferential therapy, SWD, Micro wave diathermy, IRR, UVR, Laser, Superficial Heating Modalities, Cryotherapy, Traction..								
CO1	Learn the principles, techniques, effects, indications, contraindications, and the dosage parameter for various indications of electrotherapeutic modalities in the restoration of physical functions.								
CO2	List out the indications, contraindications, dosage of electro therapy modalities, demonstrates the different techniques and describe their effects on various conditions.								
CO3	Identify the key physiological effect of the modalities, key contraindications, dangers and precautions and appropriate clinical doses.								
CO4	Describe the physiological effects and therapeutic effects and uses of various therapeutic ions and topical pharmaco- therapeutic agents to be used for the application of Iontophoresis.								
CO5	Acquire the skill of application of the electrotherapy modes like UVR, LASER, Superficial heating modalities on models, for the purpose of assessment and treatment.								

Unit-No.	Content	Contact Hour	Learning Outcome	KL
I	**Ionization/Iontophoresis:** Techniques of application of iontophoresis, Indications, Selection of current, Commonly used ions (drugs) for pain, hyperhydrosis, wound healing. **Electro-diagnosis:** FG Test SD curve-Methods of Plotting SD curve, Apparatus selection, Characters of normally innervated muscle, Characters of partially denervated muscle, Characters of completely denervated muscle, Chronaxie & Rheobase EMG: Construction of EMG equipment Nerve conduction Velocity Bio-feed back. **Pulsed electro-magnetic energy:** Principles, Production and parameters, uses:	**10**	Understanding the conditions and application of all the electrotherapeutic modalities in a correct manner.	1,2
II	**Interferential therapy:** Definition, Principle of production, Static interference system, Dynamic interference system, Dosage parameters, Electrode placement, Physiological and therapeutic effects, Indications and contraindications. **Russian current** Rebox type current	**7**	Know the use of IFT in reducing the pain and application of it in different conditions as well as the Russian current and its uses in various conditions	1,2
III	**SWD:** Definition, Frequency and wavelength of SWD, Circuit diagram and production of SWM methods of heat production by SWD, Types of electrodes used, Placement and spacing of electrodes, Tunings and testing of the apparatus, Physiological and therapeutic effects, Indications and contraindications, Dangers and	**6**	Understanding the use of SWD and microwave diathermy therapeutically in different conditions.	1,2

	dosages. **Micro wave diathermy:** Definition, wave length and frequency, production of MWD, Applicators, Dosage parameters, Physiological and therapeutic effects, Indications and contraindications, Dangers. D, Principle of production,			
IV	**IRR:** Definition, wavelength and parameters, Types of IR generators, Production, Physiological and therapeutic effects, Duration and frequency of treatment, Indication and contraindication. **UVR:** Define, Types, UVR generators: High pressure mercury vapour lamp, water cooled mercury vapour lamp, Kromayer lamp, Fluorescent tube, PUVA apparatus, Physiological and therapeutic effects, Sensitizers and filters, Dosage, Calculations of E!,E2,E3,E4 dosages, Indication and contraindications ,Dangers, Distance in UVR lamp. **LASER:** Definition, Principles of production, Production of LASER, Methods of application of LASER, Dosage of LASER, Physiological and Therapeutic effects of LASER, Safety precautions, Classifications of LASER, Energy density and power density.	**10**	Understanding IRR,UVR and LASER devices and its utility and parameter and ranges of the devices	2,3
V	**Superficial Heating Modalities** •**Wax therapy**: Principles, Composition of wax bath therapy unit, Methods of application of wax, Physiological and Therapeutic effects, Indication and contraindications, Dangers. •**Contrast bath**: Methods of application, Therapeutic uses, Indication and contraindications. •**Moist Heat Therapy**: Hydro collator packs, Methods of applications, Therapeutic uses, Indication and contraindications. •**Whirl Pool bath:** Methods of application, Therapeutic uses, Indication and contraindications. •**Fluidotherapy.** **Cryotherapy:** Definition, Principles, Physiological and Therapeutic effects, Techniques of application, Indication and contraindications, Dangers, methods of application. **Traction:** Definition, types of traction. Effect of spinal traction, Modes of application, indication contraindication, precaution and amp : limitation of traction. Technique of application.	**12**	Learning and understanding the various superficial heating modalities and learn where to use it in which type of condition for the patient.	3,4
Practical	The student of Electrotherapy must be able to demonstrate the use of electrotherapy modalities applying the principles of electrotherapy with proper techniques, choice	**90**	Students will be able to demonstrate uses of various electrotherapeutic techniques along with the required	1,2,3,4,5,6

	of dosage parameters and safety precautions. 1.Technique of treatment and application of hydrocollator packs, cryotherapy, contrast bath, wax therapy, whirl pool bath. (20hrs) 2.Faradism under pressure for UL & LL. (10hrs) 3.Demonstrate treatment techniques using SWD,IRR and microwave diathermy. (20hrs) 4.Demonstrate the techniques of UVR exposure for various conditions. (10hrs) 5.Demonstrate treatment techniques using IFT for various regions.(15 hrs) 6.Calculation of dosage and technique of application of LASER. (15hrs)		dosage.	

TEXT BOOKS:

1. Claytons Electrotherapy by Forster & Palastanga
2. Electrotherapy Explained by Low & Reed
3. Clinical Electrotherapy by Nelson

REFERENCE BOOKS:

1. Electrotherapy Evidence based practice by Sheila Kitchen
2. Physical agents by Michele Cameroon
3. Principles of Electrotherapy by Michele Cameroon

RELATIONSHIP BETWEEN COURSE OUTCOMES (CO) AND PROGRAMME OUTCOMES

CO PO Mapping		
Sl No	**Course Outcomes(CO)**	**Mapped Programme Outcomes**
1	Learn the principles, techniques, effects, indications, contraindications, and the dosage parameter for various indications of electrotherapeutic modalities in the restoration of physical functions.	**1,2,3,5,8**
2	List out the indications, contraindications, dosage of electro therapy modalities, demonstrates the different techniques and describe their effects on various conditions.	**1,2,3,4,5,6,8**
3	Identify the key physiological effect of the modalities, key contraindications, dangers and precautions and appropriate clinical doses.	**3,5,6,7,8**
4	Describe the physiological effects and therapeutic effects and uses of various therapeutic ions and topical pharmaco- therapeutic agents to be used for the application of Iontophoresis.	**1,2,3,4,5,6,7,8**
5	Acquire the skill of application of the electrotherapy modes like UVR, LASER, Superficial heating modalities on models, for the purpose of assessment and treatment.	**1,2,3,4,5,6,7,8**

SEMESTER – IV									
Course Title	**PHARMACOLOGY**								
Course code	**23BPTO223R**	**Total Credits: 2**	**L**	**T**	**P**	**S**	**R**	**O**	**C**
		Total Hours: 30	**2**	**0**	**0**	**0**	**0**	**0**	**2**
Pre-Requisite	**NIL**	**Co-Requisite**	**NIL**						
Programme	**Bachelor in Physiotherapy**								
Semester	**4th**								
Course Objectives	1.To introduce the students to the concepts related to Drugs used in the treatment of Vascular Disease and Tissue Ischemia **,** Ischemic Heart Disease, Inflammatory / Immune Diseases, 2. Drugs used in treatment of Arthritic Diseases, Disorders of Movement, Geriatrics.								
CO1	Acquainted the students with the commonly used drugs for treating vascular disease and tissue ischemia. disorders and the pharmacology of drugs used to treat them								
CO2	Apprehensive the general understanding of the pharmacology of drugs used in treating various inflammatory conditions.								
CO3	Clear understanding the significance of drug therapy in treating arthritic conditions and correlation between drug therapy and physiotherapy.								
CO4	Apprehend the understanding of different movement								
CO5	Attain knowledge about the effects of drugs on different systems, including geriatrics.								

Unit-No.	Content	Contact Hour	Learning Outcome	KL
I	**Drugs used in the treatment of Vascular Disease and Tissue Ischemia**: Vascular Disease, Hemostasis Lipid-Lowering agents, Antithrombotics, Anticoagulants and Thrombolytics **Ischemic Heart Diseas**–Nitrates, Beta-Blockers, Calcium Channel Blockers Cerebral Ischemia Peripheral Vascular Disease	**5**	By the end of this unit the students should have clear knowledge about the drugs actions and adverse reactions in vascular diseases and tissue ischemia	1,2
II	**Inflammatory / Immune Diseases:** Non-narcotic Analgesic and Nonsteroidal Anti- Inflammatory Drugs: Acetaminophen, NSAIDs, Aspirin, Nonaspirin NSAIDs, drug Interactions with NSAIDs. Glucocorticoids: Pharmacological Uses of Glucocorticoids, adverse effects, Physiologic use of Glucocorticoids.	**10**	By the end of this unit the students should know how about non-narcotics, nonsteroidal anti inflammatory drugs in details	1,2
III	**Drugs used in treatment of Arthritic Diseases:** Rheumatoid Arthritis, Osteoarthritis, Gout. Drugs used in the treatment of Neuromuscular Immune / Inflammatory Diseases: Myasthenia gravis, Idiopathic Inflammatory Myopathies, systemic lupus Erythematosus, Scleroderma, Demyelinating Disease, Respiratory Pharmacology: Obstructive Airway Diseases, Drugs used in Treatment of Obstructive airway Diseases, Allergic Rhinitis.	**6**	By the end of this unit the students should know in details about drugs used for arthritic conditions	1,2
IV	**Disorders of Movement:** Drugs used in treatment of Parkinson's Disease. Antiepileptic Drugs Spasticity and Skeletal Muscle Relaxants.	**5**	By the end of this unit the students should know about the drug actions used for movement disorders	2,3
V	**Geriatrics:** Pharmacology and the geriatric Population: Adverse effect of special concern in the Elderly, Dementia, Postural hypotension.	**4**	By the end of this unit the students should have knowledge about the drugs actions and reactions in geriatric population	3,4,5

TEXTBOOKS:

1. Lippincott's Pharmacology.
2. Essential of Medical Pharmacology byTripathi
3. Text book of Medical Pharmacology byPadmaja uday kumar

REFERENCE BOOKS:

1. Pharmacology by N.Murugesh
2. Pharmacology &Pharmacotherapeutics by Sadoskar

RELATIONSHIP BETWEEN COURSE OUTCOMES (CO) AND PROGRAMME OUTCOMES

CO PO Mapping		
Sl No	**Course Outcomes(CO)**	**Mapped Programme Outcomes**
1	Acquainted the students with the commonly used drugs for treating vascular disease and tissue ischemia. disorders and the pharmacology of drugs used to treat them	**1,3,4,5,7,8**
2	Apprehensive the general understanding of the pharmacology of drugs used in treating various inflammatory conditions.	**1,3,4,5,8**
3	Clear understanding the significance of drug therapy in treating arthritic conditions and correlation between drug therapy and physiotherapy.	**1,2,3,4,5,6,7,8**
4	Apprehend the understanding of different movement	**1,2,3,4,5,6,7,8**
5	Attain knowledge about the effects of drugs on different systems, including geriatrics.	**1,2,3,4,5,6,7,8**

SEMESTER – IV									
Course Title	**CLINICAL ORTHOPAEDICS AND TRAUMATOLOGY**								
Course code:	**23BPTO224R**	**Total Credits:3**	**L**	**T**	**P**	**S**	**R**	**O**	**C**
		Total Hours: 45T	**3**	**0**	**0**	**0**	**0**	**0**	**3**
Pre-Requisite	**Anatomy, Biomechanics, Exercise Therapy**	**Co-Requisite**	**NIL**						
Programme	**Bachelor in Physiotherapy**								
Semester	**4th**								
Course Objectives	1. To introduce the students to the concepts related to Traumatology, Fractures of upper limb, Dislocations of upper limb, Fracture of spine. 2.To introduce the students to Fractures and Dislocations of Lower limb, Dislocations of Lower limb, Soft tissue injuries, Amputations.								
CO1	Acquainted with the knowledge about orthopedic conditions, a Physiotherapist would encounter in their practice.								
CO2	Aquire the knowledge of orthopedic conditions causing disability, list the etiology, clinical features and methods of investigations and management.								
CO3	Carry out a clinical examination, diagnose and plan a treatment for the fractures of spine and dislocations of lower limb.								
CO4	Plan a proper examination and treatment for the soft tissue injuries.								
CO5	Carry out the medical examination and plan a treatment for hand injuries, amputations and spinal cord injuries.								

Unit-No.	Content	Contact Hour	Learning Outcome	KL
I	**Introduction:** Introduction to Orthopedics. Clinical examination in an orthopedic patient. Common investigative procedures. Radiological and Imaging techniques in Orthopedics. Inflammation and repair, soft tissue healing. **Traumatology:** Fracture: definition, types, signs and symptoms. Fracture healing. Complications of fractures. Conservative and surgical approaches. Principles of management – (open/closed, immobilization etc) Subluxation. Dislocations- definition, signs and symptoms, management (conservative and operative)	**12**	Students should be able to take medical history, carry out clinical examination of the common fractures	1,2,3
II	Fractures and dislocations of Upper limb **Fractures of upper limb**- causes, clinical features, mechanism of injury, complications, conservative and surgical management of the following: fractures: fracture of clavicle and scapula. Fractures of greater tuberosity and neck of humerus. Fracture shaft of humerus. Supracondylar fracture of humerus. Fracture of capitulum, radialhead, olecranon, coronoid, and epicondyles.Side swipe injury of elbow.Both bone fractures of ulna and radius. Fracture of forearm- monteggia, galaezzi fracture dislocation. Chauffer's fracture. Colle's fracture. Smith's fracture. Scaphoid Fracture. Fracture of metacarpals. Bennett's Fracture. Fracture of Phalanges (proximal and middle) **Dislocations of upper limb:** Anterior dislocation of shoulder- mechanism of injury, clinical feature, complications,	**10**	Students should be able to take medical history, carry out clinical examination and plan a treatment for the common fractures and dislocations of upper limb.	1,2,3, 4

	conservative management (kocher's and Hippocrates maneuver) , Surgical management (Putti Plat , Bankart's) andetc. Recurrent dislocation of shoulder. Posterior dislocation of Shoulder- mechanism of injury, clinical features and management. Posterior dislocation of elbow- mechanism of injury, clinical features, complications and management			
III	**Fracture of spine:** Fracture of cervical spine- mechanism of injury, clinical features, complication (Quadriplegia) management – immobilization (collar, cast, brace, traction) MANAGEMENT FOR STABILIZATION. Management of complications (bladder and bowel, Quadriplegia). Clay shoveller's fracture. Hangman's fracture, fracture Odontoid. Fracture of Atlas Fracture of thoracic and lumbar regions- mechanism of injury, clinical features, management conservative and surgical of common fractures around thoracic and lumbar regions. Fracture of Coccyx. Fracture of rib cage- mechanism of injury, clinical features, management for fracture ribs, and fracture of sternum. **Fractures and Dislocations of Lower limb:** Fracture of pelvis and lower limb- causes, clinical features, mechanism of injury, complications , conservative and surgical management of the following fractutres: Fracture of pelvis. Fracture of neck of femur- classification, clinical features, complications, management- conservative and surgical. Fractures of trochanters. Fracture shaft femur- clinical features, mechanism of injury, complications, management-conservative and surgical. Supracondylar fracture of femur. Fractures of the condyles of femur. Fracture patella. Fractures of tibial condyles. Both bones fracture of tibia and fibula. Dupuytren's fracture Maisonneuve's fracture. Pott's fracture- mechanism of injury, management. Bimalleolar fracture Trimalleolar fracture Fracture calcaneum –mechanism of injury, complications and management. Fracture of talus. Fracture of metatarsals- stress fracture join's fracture. Fracture of phalanges. Dislocations of Lower limb-mechanism of injury,clinical features, complications, management of the following dislocations of lower limb. Anterior dislocation of hip .Posterior dislocation of hip. Central dislocation of hip. Dislocation of patella. Recurrent dislocation of patella.	**14**	Students should be able to carry out a clinical examination, diagnose and plan a treatment for the fractures of spine and dislocations of lower limb	1,2,3, 4
IV	**Soft tissue injuries** Define terms such as sprains,	**3**	By the end of the topic the	1,2,3,

	strains, contusion, tendinitis, rupture, tenosynovitis, endinosinobursitis. Mechanism of injury of each, clinical features, managements- conservative and surgical of the following soft tissue injuries; Meniscal injuries of knee. Cruciate injuries of knee. Medial and lateral collateral injuries of knee. Lateral ligament of ankle. Wrist sprains. Strains- quadriceps, hamstrings, calfbiceps, triceps etc. contusions- quadriceps, gluteal, calf, deltoid etc. Tendon ruptures- Achilles, rotatorcuffmuscles, biceps, pectorals etc.		students should be able to understand and plan a proper examination and treatment for the soft tissue injuries	4.5
V	Hand injuries- Mechanism of injury, clinical features, and management of the following : Crush injuries. Flexor and extensor . Burn injuries of hand. Amputation injuries: Definition, levels of amputation of both lower and upper limbs, indications, complications. Traumatic Spinal Cord injuries: Clinical features, complications, medical and surgical management of Paraplegia and Quadriplegia.	**6**	After the completion of the topic the students should be able to know and carry out the medical examination and plan a treatment for hand injuries, amputations and spinal cord injuries	1,2,3, 4,5

TEXT BOOKS:

1. Outline of Fractures—John Crawford Adams.
2. Outline of Orthopedics. — John Crawford Adams.
3. Text book of Orthopedics.—Maheswari.

REFERENCE BOOKS:

1. Apley's Orthopedics.
2. Textbook of Orthopedics and Traumatology—M.N.Natarajan.

RELATIONSHIP BETWEEN COURSE OUTCOMES (CO) AND PROGRAMME OUTCOMES

CO PO Mapping		
SN	**Course Outcome (CO)**	**Mapped Programme Outcome**
1	Acquainted with the knowledge about orthopedic conditions, a Physiotherapist would encounter in their practice.	**1,2,3,5,8**
2	Aquire the knowledge of orthopedic conditions causing disability, list the etiology, clinical features and methods of investigations and management.	**1,2,5,8**
3	Carry out a clinical examination, diagnose and plan a treatment for the fractures of spine and dislocations of lower limb	**1,8**
4	Plan a proper examination and treatment for the soft tissue injuries.	**1,4,5,6,7,8**
5	Carry out the medical examination and plan a treatment for hand injuries, amputations and spinal cord injuries.	**1,2,4,5,6,7,8**

SEMESTER –IV									
Course Title	**CLINICAL NEUROLOGY AND NEUROSURGERY**								
Course code:	**23BPTO225R**	**Total Credits:3**	**L**	**T**	**P**	**S**	**R**	**O**	**C**
		Total Hours: 45T	**3**	**0**	**0**	**0**	**0**	**0**	**3**
Pre-Requisite	**Neuroanatomy, Pharmacology**	**Co-Requisite**	**General Medicine And General Surgery**						
Programme	**Bachelor in Physiotherapy**								
Semester	**4th**								
Course Objectives	1. To introduce the students to the concepts related to clinical method of neurological examination, Neuro-ophthalmology, Deafness, vertigo imbalance, Cerebo-vascular diseases, Head injury, Higher cortical disorders, Perceptual disorders ,Movement disorders, Cerebellar and coordination disorders, Epilepsy, Infections of brain and spinal cord. 2. To introduce the students about the concept of neuro anatomy, medical management and surgical management.								
CO1	Impart the knowledge about relevance aspects of Neurology and Neurosurgery.								
CO2	Identify the diseases the Physiotherapist would encounter in their practice.								
CO3	List the aetiology, pathology, clinical features and treatment methods for various neurological conditions.								
CO4	Acquire skill to diagnose neurological cases.								
CO5	Acquire skill of clinical examination of Neurological System.								

Unit-No.	**Content**	**Contact Hour**	**Learning Outcome**	**KL**
I	Basic neuro-anatomy and basic neurophysiology the clinical method of neurology: 1. Approach to the Patient with Neurologic Disease. 2. Special Techniques for Neurologic Diagnosis. Neuro-ophthalmology: assessment of visual function- acuity, field, color vision, papillary reflex, accommodation reflex, abnormalities of optic disc , Disorders of optic nerve, Disorders of higher visual processing, Disorders of pupil, Disorders of eye movement	**9**	To learn about the basic neuro anatomy, neuro physiology, neuro ophthalmology and neurological examinations	**1,2,3**
II	Deafness, vertigo imbalance: physiology of hearing, Disorders of hearing, Examination and investigation of hearing, Tests of vestibular dysfunction, vertigo, peripheral vestibular disorder, central vestibular vertigo. Lower cranial nerve paralysis: etiology clinical features, investigations, and management of following disorders- lesions in trigeminal nerve, trigeminal neuralgia, trigeminal sensory neuropathy, lesions in facial nerve, facial palsy, bells palsy, hemi facial spasm, glossopharyngeal neuralgia, lesion of vagus nerve, lesion of spinal accessory nerve, lesion of hypoglossal nerve. Dysphagia- swallowing mechanism, causes of dysphagia, symptoms, examination and management of dysphagia.	**9**	To learn about the deafness, vertigo, lower cranial nerve palsies, dysphagia	**1,2,3,4**
III	Cerebo-vascular diseases: Define stroke, TIA, RIA, Stroke evalution, Multi infarct dementia and lacunar infarct. Classification of stroke- Ischemic, haemorrhagic, venous infarcts, risk factors, cause of ischemic stroke, causes of haemorrhagic stroke. Classification of haemorrhagic stroke, classification of stroke based on symptoms, stroke syndrome, investigations, differential diagnosis, medical and surgical management. Head injury: Etiology, classification, clinical signs and symptoms, investigation, differential diagnosis, medical management, surgical management and complications.	**9**	To learn about the CVA, Head injury	**1,2,3,4**
IV	Higher cortical, neuro physiological and neurobehavioral	**9**	To learn about the	**1,2,3,4.5**

	disorders: Higher cortical disorders- definition, causes and investigation of coma, criteria for diagnosis of brain death. Perceptual disorders-definition, types, classification, investigation & examination. Speech disorders - definition, types, classification, investigation & examination. Epilepsy - causes of blackouts, physiological nature of epilepsy, classification, clinical features, investigation, medical and surgical management of following disorders- non epileptic attack of childhood, epilepsy in childhood, seizers and epilepsy syndrome in adults. Sleep disorders - definition, classification, clinical features& investigation Dementia, Obsessiev-compulsive disorders. Movement disorders : Definition, etiology, risk factors, pathophysiology, classification, clinical signs & symptoms, investigations, differential diagnosis, medical management, surgical management and complications of following disorders – Parkinson's diseases, Dystonia, Chorea, Ballism, Athetosis, Tics, Myoclonus &Willson's disease		higher cortical disorders, Perceptual disorders, Speech disorders, Sleep disorders, Epilepsy, Movement disorders	
V	Cerebellar and coordination disorders : Etiology, pathophysiology, classification, clinical signs & symptoms, investigations, differential diagnosis, management of Congenital ataxia, Friedreich's ataxia, Ataxia talengiecfasia, Metabolic ataxia, Hereditary cerebellar ataxia, Tabes dorsalis and syphilis. Infections of brain and spinal cord: etiology, pathophysiology, classification, clinical signs &symptoms, differential diagnosis, medical management, surgical management and syndrome, complications of systemic infections on nervous system- Septic encephalopathy, AIDS, Rheumatic fever, Brucellosis, Tetanus and pertussis.	**9**	To learn about the cerebellar disorders and infections of brain and spinal cord	**1,2,3,4,5**

1 TEXT BOOKS:

1. Neurology and Neurosurgery IllustratedBy Kenneth W. Lindsay, Ian Bone, Geraint Fuller

REFERENCE BOOKS:

1. Snell's Clinical Neuroanatomy By Ryan Splittgerber
2. Physical rehabilitation by Susan B. O'Sullivan, Thomas J. Schmitz, George D. Fulk

RELATIONSHIP BETWEEN COURSE OUTCOMES (CO) AND PROGRAMME OUTCOMES

CO PO Mapping		
SN	**Course Outcome (CO)**	**Mapped Programme Outcome**
1	Impart the knowledge about relevance aspects of Neurology and Neurosurgery.	**1,2,3,5,8**
2	Identify the diseases the Physiotherapist would encounter in their practice.	**1,2,5,8**
3	List the aetiology, pathology, clinical features and treatment methods for various neurological conditions.	**1,8**
4	Acquire skill to diagnose neurological cases.	**1,4,5,6,7,8**
5	Acquire skill of clinical examination of Neurological System.	**1,2,4,5,6,7,8**

SEMESTER –IV									
Course Title	**ENGLISH FOR EMPLOYABILITY**(Communicative English & Soft Skills)								
Course code	**23UBPD222R**	**Total Credits:2**	**L**	**T**	**P**	**S**	**R**	**O**	**C**
		Total Hours: 60	**0**	**0**	**4**	**0**	**0**	**0**	**2**
Pre-Requisite	**NIL**	**Co-Requisite**	**NIL**						
Programme	**Bachelor in Physiotherapy**								
Semester	**4th**								
Course Objectives	1. To introduce students with the various tools of effective presentation. 2. To instruct, influence, engage, educate, or entertain the listeners. 3. To prepare the students for the campus drives & walking interviews. 4. To gain confidence with the chance to reflection their non-verbal and verbal communication abilities.								
CO1	Preparation of presentation and delivering it in the classroom will improve their confidence and strengthen their publics peaking skills too.								
CO2	It will enable them to handle the audience with confidence by recognizing and transforming the problem areas.								
CO3	It will enable the students to prepare resume in a correct and effective manner.								
CO4	It will enhance value creation, create efficiencies and engage themselves to deliver better results.								
CO5	Students will develop interpersonal and communication skills essential for professional and social interactions.								

Unit-No.	**Content**	**Contact Hour**	**Learning Outcome**	**KL**
I	Presentation Skills 1.Introduction 2.Essential characteristics of ago presentation 3.Preparation of ago of presentation	**8**	Introduction to skills	1,3,5
II	Public Skills Fear of Public Speaking, Understanding and Overcoming Fear of Public Speaking, Confidence and Control, Tips for Presentations and Public Speaking, Tips for Using Visual Aids in Presentations, Delivering Presentations Successfully, Doubt Clearing and Summary of Main Points	**8**	Learn about public skills	1,3,5
III	Practical session on Resume, Curriculum Vitae, Writing cover letter & LinkedIn Profile Preparation, submission & screening of Resume. Practical session on cover letter screening session Creating profile in LinkedIn How to utilize it	**8**	Know about Preparation, submission & screening of Resume	1,3,5
IV	Leadership & Management Skills 1. Concepts of Leadership 2.Leadership Styles 3.Manager VS Leader 4.How to be an Effective Leader Doubt Clearing Session.	**10**	Know about Concepts of Leadership	1,3,5
V	Interview Skills & Dress code Ethics Types of interview-telephonic, virtual& face to face			

	Online interview, personal interview Panel interview Group interview Types of interview questions-traditional/common interview question on General Strategies for answering questions, Preparation before the interview, How to dress up for an interview, How to maintain eye contact and positive body language Interview do's and don'ts, Introduction to Dress Code Ethics, Purpose and Importance What to Wear During Interview Any Other Formal Meetings –Male & Female	**10**	Learn about interview skills	1,3,5

TEXT BOOKS

- What Employers Want: The Work skills Handbook-KarenHolmes,2011
- EnglishGrammarinUse,RaymondMurphy4thedition,CUP

REFERENCE BOOK FOR SOFT SKILLS:

- Compiled and prepared by the Training and Development team, AdtU Other Learning Resources
- Oxford Business English, M. Duckworth, Essen. Bus. Grammar

RELATIONSHIP BETWEEN COURSE OUTCOMES (CO) AND PROGRAMME OUTCOME

CO PO Mapping		
SN	**Course Outcome (CO)**	**Mapped Programme Outcome**
1	Preparation of presentation and delivering it in the classroom will improve their confidence and strengthen their publics peaking skills too.	**4.5.6**
2	It will enable them to handle the audience with confidence by recognizing and transforming the problem areas.	**4,5**
3	It will enable the students to prepare resume in a correct and effective manner.	**6,7,8**
4	It will enhance value creation, create efficiencies and engage themselves to deliver better results.	**5,6,7,8**
5	Preparation of presentation and delivering it in the classroom will improve their confidence and strengthen their publics peaking skills too.	**2,5,6,7,8**

SEMESTER –IV									
Course Title	**EXTRA CURRICULAR ACTIVITIES/CO-CURRICULAR ACTIVITIES**								
Course code	**23UBEC221/ 23UBCC221**	**Total Credits: 1**	**L**	**T**	**P**	**S**	**R**	**O**	**C**
		Total Hours:	**0**	**0**	**0**	**4**	**0**	**0**	**1**
Pre-Requisite	**NIL**	**Co-Requisite**	**NIL**						
Programme	**Bachelor in Physiotherapy**								
Semester	**4th**								
Course Objectives	The students will be engaged in different activities headed under different clubs namely dance, music, photography, drama, literacy, etc. The students will participate in regular club activities like workshops, competitions as per their interest and hobbies. The students will be trained to represent ADTU in various inter university, state and national level competitions. The students will be given a platform to learn from invited experts in their respective fields. The students will get an exposure of 360-degree learning methodology considering the overall growth along with the academics.								
CONTENT									
AdtU encourages a range of activities outside the regular curriculum intended to meet learner's interest. These activities are aimed to develop social and soft skills and promote the holistic development of the learners. Keeping in mind the 360-degree learning methodology, the students are engaged in different activities headed under different clubs viz. Dance, Music, Photography, Drama, Literary, etc. The students are encouraged to participate in regular club activities, workshops, and competitions as per their interests and hobbies. The student members of the club are trained to represent AdtU in various inter-university, student, and national-level competitions. Renowned personalities are invited to conduct workshops that benefit the members and students by giving them the platform to learn from experts in their respective fields.									

SEMESTER –IV									
Course Title	**INTRODUCTION TO FINANCIAL BUDGETING AND PLANNING**								
Course code	**23UUFL201R**	**Total Credits: 1**	**L**	**T**	**P**	**S**	**R**	**O**	**C**
		Total Hours:	**0**	**0**	**2**	**0**	**0**	**0**	**1**
Pre-Requisite	**NIL**	**Co-Requisite**	**NIL**						
Programme	**Bachelor in Physiotherapy**								
Semester	**4th**								
Course Objectives	1. To create awareness among students about the need for possessing financial literacy education. 2. Identification of money as a working asset. 3. Impart the ability to make better financial decisions								
CO1	The students would be able to understand the importance of financial knowledge and prepare financial plans and budgets and plan and manage personal finances.								
CO2	The students would be able to understand the need and various kinds of banking institutions' instruments and their utilities.								
CO3	The student would be able to describe the importance of insurance services as social security measures.								
CO4	The student would be able to manage the money and debt more effectively.								
CO5	Students will enhance their decision-making skills in financial matters, leading to better economic stability and future planning.								

Unit-No.	**Content**	**Contact Hour**	**Learning Outcome**	**KL**
I	**Introduction:** • Meaning, need and importance of Financial Literacy; • Different components of Financial Literacy; • Prerequisites of financial literacy; • Savings – Meaning and Difference between savings and investment; • Types of Financial Institutions and the services provided – Banking and Non-Banking; • Different investment avenues.	12	Students will Know about Meaning, need and importance of Financial Literacy	1, 2
II	**Financial Planning:** • Meaning, need and importance for financial planning, • Economic needs, balancing between economic need and resources; • Three pillars of investments-risk, return, liquidity; • Budgeting and its importance in financial planning; • Steps involved in Financial Planning Process; • Preparation of personal budgets, budget surplus and budget deficit, avenues for savings from surplus, sources for meeting deficit. • Informal Society funds and crowd funding	12	Students will be able to learn about Financial Planning	3, 4
III	**Banks& Post Office-As financial service provider:**		Students will learn about Meaning and evolution	3, 4

	• Meaning and evolution of money, Banks –meaning, types & functions; types of accounts; Formalities to open various accounts • Different types of Post Office saving schemes: Recurring deposit, savings, term deposit; NSC; Kisan Vikas Patra; Monthly Income scheme (MIS)Account, • Public Provident Funds (PPF), Senior citizen savings scheme (SCSS), Sukanya Samriddhi Accounts, • Indian Postal Order; International Money transfer service; Forex Services; • Money remittance services; Jansuraksha Scheme.	12	of money	
IV	**Insurance- As financial service provider:** • Different types of Risks and their Management, Diversification of risk; • Meaning, need and importance of Insurance; Types of Insurance – Life Insurance, Health Insurance, General Insurance, Term Insurance, • Pension and retirement policies; • Post office life insurance schemes, Postal life insurance and rural postal life insurance.	10	Students will understand the Different types of Risks and their Management	1, 2, 3
V	**Transformations in Digital Money market:** • Various functions & innovative services of Banks; Mobile Banking, NEFT, IMPS, RTGS, • Money transfer, Different types of cards- Debit & Credit, E-Banking, Unified payment interface (UPI), • Credit Scoring - CIBIL, Digital Banking, crypto currency and related transactions, Fintech, Blockchain; Understanding Digital Payments.	2	Students will understand the Transformations in Digital Money market	4, 5

TEXTBOOKS:

T1: The Young Adult's Guide to Financial Success- How To Manage Your Money& Live Better On Less By Edward M. Wolpert

T2:Financial Freedom with Financial Control by Jagmohan Singh Pendown Press

T3:The Richest Manin Babylon (Deluxe Hard bound Edition) by George S.Clasonixia Press Garden City, New York, Ships from and sold by MGBOOKS.

T4: Financial literacy to financial planning by Dr. Purvi Kothari and Mr. Keyur Mehta Nexus Publications Surat Gujarat

T5: Ernst & Young′s Personal Financial Planning Guide: Take Control of Your Future and Unlock the Door to Financial Security by Ernst &Young, Robert J.Garner, Robert B.Coplan, BarbaraJ. Raasch, CharlesL. Ratne

SEMESTER – IV									
Course Title	**BASIC LIFE SAVING SKILLS (BLSS)**								
Course code	**23UULS201R**	**Total Credits: 1**	**L**	**T**	**P**	**S**	**R**	**O/F**	**C**
		Total Hours:	**0**	**0**	**2**	**0**	**0**	**0**	**1**
Pre-Requisite	**NIL**	**Co-Requisite**	**NIL**						
Programme	**Bachelor in Physiotherapy**								
Semester	**4th**								
Course Objectives	The aim of the course is to provide the learners with basic knowledge and practical skills needed in an emergency fire situation, and to provide appropriate basic management and treatment for injuries.								
CO1	The students will be able to recognize respiratory arrest/cardiac arrest, and provide oxygen to the patients to sustain tissue viability.								
CO2	The students will be able to perform the importance of early CPR on Adult, child and infants victims.								
CO3	The students will be able to perform the basic steps to relive choking for responsive and unresponsive victims								
CO4	The students will be able to prevent injury from getting worse, aiding recovery, relieving pain and protecting the victims from deterioration.								
CO5	The students will be able to learn about the fire equipment requirements, methods of operation and getting out alive.								

Unit-No.	**Content**	**Contact Hour**	**Learning Outcome**	**KL**
I	**Basic Life Support (BlS)** ● Introduction of BLS ● Chain of survival ● ABCs Assessment ● CPR and Ventilation Technique ● AED Choking for adult and children	**4**	Describe and understand about the Basic Life Support and the techniques that can be used during emergency	1,2,3
II	**First Aid** ● Golden rules of First aid First aid Kits	**2**	To familiarize the rules and utility of First Aid kits.	1,2,4
III	**Trauma emergencies** ● Introduction ● Priorities of Initial approach in pre-hospital care a) Scene safety b) Primary assessment c) Bleeding control d) Extrication of victims and Safe transfer e) Cervical spine stabilization and C-collar application Splinting of broken Limbs	**4**	To understand the trauma emergencies and the correct approach that should be taken during the pre-hospital care such as primary assessment, bleeding control, Extrication of victims ,Safe transfer and other approach that can be taken during emergencies	1,2
IV	**Triage system** ● Introduction ● Flow chart approach of Triage Triage of Single and Multiple Casualties in Pre Hospital setting	**2**	To understand triage system and its utility in pre hospital settings	2,3,5
V	**Medical emergencies** ● Introduction ● Victim centered approach and Management of:-	**4**	To understand medical emergencies and learn the handling and management of conditions like seizures, heart	3,4,5,6

	a) Seizures b) Heart attack c) asthma d) diabetic emergencies e) emergency child birth Respiratory distress and failure		attack, asthama etc.	
VI	**Environmental Emergency** ● Recognizing and caring for heat related illness such as: Heat stroke, heat cramps, heat exhaustion, dehydration. ● Recognizing and caring for cold related illness such as frost bite, hypo thermia. Poisoning, Snakebite	**2**	To understand environmental induced medical emergencies like Heat stroke, heat cramps, heat exhaustion, dehydration and handling of cold related illness such as frost bite, hypothermia. Poisoning, Snakebite	4,5,6
VII	**Safety of people in the event of fire** ● Recognition of possible fire sources and emergency procedures, construction techniques for eliminating fire. ● Types of detecting devices and extinguishing agents and systems ● Devising procedures in the event of fire and react to fire danger. Safety goals and objectives, Identifying hazards and risks	**2**	To understand the safety of the people in case of a fire breakout and utility of the extinguishing agents and systems in the event of fire and react to fire danger,construction techniques for eliminating fire.Safety goals and objectives, Identifying hazards and risks	5,6

Book reference:

1. Nancy Caroline'S Emergency Care in the streets eight edition by Jones and Bartlett
2. First Aid book by LC Gupta; Publisher Jaypee Brothers, 7th Edition.
3. Advance Cardiovascular life support and Basic life support provider manual@American Heart Association (AHA)

RELATIONSHIP BETWEEN COURSE OUTCOMES (CO) AND PROGRAMME OUTCOMES

CO PO Mapping		
SN	**Course Outcome (CO)**	**Mapped Programme Outcome**
1	The students will be able to recognize respiratory arrest/cardiac arrest, and provide oxygen to the patients to sustain tissue viability.	**1,2,7,8**
2	The students will be able to perform the importance of early CPR on Adult, child and infants victims.	**1,2,4,5**
3	The students will be able to perform the basic steps to relive choking for responsive and unresponsive victims	**1,7,8**
4	The students will be able to prevent injury from getting worse, aiding recovery, relieving pain and protecting the victims from deterioration.	**1,2,6,7**
5	The students will be able to learn about the fire equipment requirements, methods of operation and getting out alive.	**2,5,6,8**

SEMESTER – V									
Course Title	**CLINICAL ORTHOPAEDICS AND TRAUMATOLOGY**								
Course code:	**23BPTO311R**	**Total Credits:3**	**L**	**T**	**P**	**S**	**R**	**O**	**C**
		Total Hours: 45T	**3**	**0**	**0**	**0**	**0**	**0**	**3**
Pre-Requisite	**Anatomy, Biomechanics, Exercise Therapy, Clinical Orthopaedics And Traumatology**	**Co-Requisite**	**NIL**						
Programme	**Bachelor in Physiotherapy**								
Semester	**5th**								
Course Objectives	1. To introduce the students to the concepts related Deformities, Congenital deformities, Acquired deformities, Diseases of Bones and Joints, Infective conditions, Arthritic conditions. 2. Bone Tumours, Metabolic Bone disease, Inflammatory and Degenerative conditions, Syndromes, Neuromuscular disorders, Orthopaedic surgeries, Regional conditions.								
CO1	Provides the knowledge about orthopaedic conditions the Physiotherapists would encounter in their practice.								
CO2	Able to understand orthopaedic conditions causing disability,								
CO3	List the etiology, clinical features and methods of investigations and management of various orthopaedic conditions.								
CO4	Classify and manage the medical treatment of various orthopaedic surgeries.								
CO5	Understand the different degenerative conditions of the joint and bone and be able to diagnose and manage it.								

Unit-No.	Content	Contact Hour	Learning Outcome	KL
I	**Deformities**- clinical features, complications, medical and surgical management of the following Congenital and acquired deformities. **Congenital deformities**- CTEV. COHo Torticollis. Scoliosis. Flat foot. Vertical talus. Hand anomalies- syndactyly, polydactyly and ectrodactyly. Arthrobrryposis multiplex congenital (amyoplasia congenital). Limb deficiencies- Amelia and Phocomelia. Klippedfeil syndrome. Osteognesis imperfect (fragile assium). Cervical rib. **Acquired deformities** –Acquired Torticollis. Scoliosis. Kyphosis. Lordosis. Genuvarum. Genu valgum. Genurcurvatum. Coxavara. Pes cavus. Hallux rigidus. Hallux Valgus, Hammer toe, Metatarsalgia.	**10**	After completion of the topic the students should be able to understand the concept of all the deformities and congenital deformities.	1,2,3,4,5
II	**Diseases of Bones and Joints:** Causes, clinical features, complications, management – Medical and surgical of the following conditions Infective conditions: Osteomyelitis (acute and chronic), Brodie's Abscess, TB spine and major joints like shoulder, hip, knee, ankle, elbow etc. Arthritic conditions: Pyogenic Arthritis, Septic Arthritis, Syphyllitic infection of joints, **Bone Tumors:** Classification , Clinical features, Management- Medical and surgical following tumors: Osteoma, Osteosarcoma, Osteochondroma, Enchondroma, Ewing's	**14**	By the completion of this topic the students should be able to dignose and plan a medical treatment for the various bones and joint diseases.	1,2,3,4,5

	Scarcoma, Giant cell tumor, Multiple myeloma, metastatic tumor, Pertrhe's disease, Slipped capital femoral epiphysis, Avascular necrosis, Metabolic Bone disease: Rickets, Osteomalacia, Osteopenia, Osteoporosis **Inflammatory and Degenerative conditions**: Causes, Clinical features, complications, deformities, Radiological features, management- conservative and surgical for the following conditions: Osteoarthritis, Rheumatoid Arthritis, Ankylosing Spondylitis, Gouty arthiritis, Psoriatic arthritis, Hemophilic arthritis, Still's diseases(Juvenile Rheumatoid Arthritis), Charcot's Joints, Connective tissue disorder- Systemic Lupus Erythematosis, Scleroderma, Dermatomyositise, Poliomyelitis, Mixed connective tissue disease(MCTD).			
III	**Syndromes**: causes, clinical features, complications, management – conservative and surgical of the following: Cervicobrachical syndrome, Thoracic outlet syndrome, Vertebro-basilar syndrome, Scalenus syndrome, Costo clavicular syndrome, Levator scapulae syndrome, Piriformis syndrome. Cervical and lumbar Pathology : indications, classification, types , principles of management – medical and surgical for the following : prolapsed intervertebral disc (PID) , spinal canal stenosis , spondylosis (cervical and lumbar) , spondylolysis , spondylolisthesis, lumbago / lumbo sacral strain, sacralisation, lumbarisation , coccydynia , hemivertebra.	**9**	By the end of this topic the students should know the different pathologies of the bones and joints	1,2,3,4,5,6
IV	**Orthopedic surgeries** : indication , classifications , types , management of following surgeries: Arthrodesis , arthroplasty (partial and total replacement), osteotomy external fixators , spinal stabilization surgeries(Harrington's , Luque's , Steffi plating) etc. limb re-attachments .	**3**	By the end they should be able to classify and manage the medical treatment of various orthopaedic surgeries.	1,2,3,4.5,6
V	**Regional conditions**: definition, clinical feature and management of the following regional conditions: ● Shoulder: Periarthritic shoulder (adhesive capsulitis). Rotatorcuff tendinitis. Supraspinatus tendinitis. Bicipital tendinitis. Sub acromialbursitis. ● Elbow: Tennis elbow. Golfer's elbow. Olecranon bursitis (student's elbow). Tricepstendinitis. ● Wrist and hand: De quenain's tenosynovitis. Gangalian. Trigger finger/thumb. Mallatefinger.	**9**	At the end the students should be able to understand the different degenerative conditions of the joint and bone and be able to diagnose and manage it.	1,2,3,4,5,6

	Carpel tunnel syndrome. Dupuytren'scontracture. ● Pelvis and hip: IT Band syndrome. Priformis syndrome. Trochantricbursitis. ● Knee: Osteochondritis dissecans. Prepatellar and Suprapatellar bursitis. Popliteal tendinitis. Patellar tendinitis. Chondromalacia patella. Plica syndrome. Fat pad syndrome(hoffa'ssyndrome) **Ankle and foot:** Ankle sprains. Plantar fasciitis/calcaneal spur. Tarsal tunnel syndrome. Achilles tendinitis. Metatarsalgia. Morton'sneuroma.			

TEXT BOOKS:

1.Outline of Fractures—John CrawfordAdams.
2.Outline of Orthopedics. — John CrawfordAdams.
3.Text book of Orthopedics.—Maheswari

REFERENCE BOOKS:
1.Apley's Orthopedics.
2.Textbook of Orthopedics and Traumatology—M.N.Natarajan

RELATIONSHIP BETWEEN COURSE OUTCOMES (CO) AND PROGRAMME OUTCOMES

CO PO Mapping		
SN	**Course Outcome (CO)**	**Mapped Programme Outcome**
1	Provides the knowledge about orthopedic conditions the Physiotherapists would encounter in their practice.	**1,2,3,4,5,6,7,8**
2	Able to understand orthopedic conditions causing disabilit.	**1,2,3,4,5,6,7,8**
3	List the etiology, clinical features and methods of investigations and management of various orthopedic conditions.	**1,2,3,4,5,6,7,8**
4	Classify and manage the medical treatment of various orthopaedic surgeries.	**1,2,3,4,5,6,7,8**
5	Understand the different degenerative conditions of the joint and bone and be able to diagnose and manage it.	**1,2,3,4,5,6,7,8**

SEMESTER – V									
Course Title	**GENERAL MEDICINE AND SURGERY**								
Course code:	**23BPTO311R**	**Total Credits:4**	**L**	**T**	**P**	**S**	**R**	**O**	**C**
		Total Hours: 78T	**4**	**0**	**0**	**0**	**0**	**0**	**4**
Pre-Requisite	Human Anatomy II, Human Physiology II	**Co-Requisite**	**NIL**						
Programme	**Bachelor in Physiotherapy**								
Semester	**5th**								
Course Objectives	1. Impart the students to the concepts related to diseases of various systems of human body. 2. Introduce the students about the concept of medical management of various diseases. 3. Focuses on Concepts of Fluid and Electrolyte disturbances, Blood Transfusion and Nutrition in Surgery. 4. Introduce the students about Anaesthesia, Incisions Surgical Clips and Ligatures 5. This paper shall focus on Thoracic and Cardiac Surgeries .Surgical Oncology and its Surgical management.								
CO1	Acquire the knowledge about the diseases the therapist would encounter in their practice. List out the etiology, pathology, clinical features, and treatment methods for various medical conditions.								
CO2	Acquainted with the knowledge and understanding about infection, diseases of blood and deficiency of nutrition and understand the cardiovascular and respiratory diseases and its medical management.								
CO3	Understand about the various types of abdominal Incisions, list the muscles and nerves injuries and its indications and acquire the knowledge of various deformities of the chest wall, its causes and plan the Surgical management for those conditions.								
CO4	Plan the appropriate Surgical management for Cancer, and understand the types of cancer.								
CO5	Understand the steps & approaches in surgery & describe the components of soft tissues injury to reach target tissue & list out its complications. Classify, assess, evaluate & describe surgical management of Wounds.								

Unit-No.	**Content**	**Contact Hour**	**Learning Outcome**	**KL**
I	INFECTION: Different types of infection, sources & spread of infection, management of infection, sexually transmitted diseases- HIV infections and AIDS Food Poisoning and Gastroenteritis- Clinical features, Management. Common agents of POISONIGS- clinical features- general management, drug misuse, envenomation. FOOD AND NUTRITION- vitamin and deficiency diseases, protein- energy malnutrition- clinical features and treatment, obesity and its related disorders: causes – complications, management of obesity, diet, exercise and medications. DISEASES OF THE BLOOD: examinations of blood disorders- clinical manifestation of blood disease: anemia- signs and symptoms types and management: hemophilia - causes, clinical features- management.	6 6 6	To learn about the infection and food poisoning. To learn about the deficiency diseases.	1,2,3
II	CARDIOVASCULAR DISEASE : examination of the cardio vascular system – COMMON investigations, ECG, exercise stress testing, clinical features, signs and symptoms, complications, management and treatment of the following diseases and disorders of the heart: pericarditis, myocarditis, rheumatic fever- Heart valve disorders, ischemic heart disease, congenital disorders of the heart, cardiac arrest, Hypertension: definitions, causes, classifications, investigations and management RESPIRATORY DISEASE: Examinations of the respiratory systems- investigations: chest radiographs, pulmonary function test. Clinical	6	To learn about the cardiovascular diseases.	1,2,3,4

	manifestations of lung diseases, upper respiratory tract infections; definition, aetiology, clinical features, signs and symptoms, complications, management and treatment of following lung diseases : chronic bronchitis, emphysema, asthma, Bronchiectasis, pneumonia, tuberculosis, fungal diseases, interstitial lung diseases, chronic obstructive lung disease. Respiratory Failure- definition, types, causes, clinical features, diagnosis and management	6	To learn about the respiratory diseases.	
III	Fluid, electrolyte and acid base disturbances- diagnosis and management; nutrition in the surgical patient; wound healingbasic process involved in wound repair, basic phases in the healing process, clinical management of wounds, factors affecting wound healing, scars- types and treatment, haemostasis components, haemostatic disorders, factors affecting bleeding during surgery, Transfusion therapy in surgery- blood components; general post- operative complications and its management,	12	Focuses on Concepts of Fluid and Electrolyte disturbances ,Blood Transfusion and Nutrition in Surgery.	5,6
IV	Indications for surgery; types of anesthesia and its effect on the patient; types of incision; clips ligatures and sutures; radiology diagnostic procedures, endoscopy, Biopsy- uses and types. Drainage systems and tubes used after surgery. Causes, clinical presentation, diagnosis and treatment following injury/ trauma in the thoracic cavity- Pneumothorax, Hemothorax, Fracture Rib injury to pericardium and pulmonary Contusion.	10 8	Introduce the students about Anaesthesia, Incisions Surgical Clips and Ligatures This paper shall focus on Thoracic and Cardiac Surgeries	5,6
V	Surgical oncology- cancer- definition, Different types of cancer – Ca breast, Ca oesophagus, Ca liver, CA Pancreas CA Colons. Surgical management. Disorders of the chest wall, lung and mediastinum- surgical management for the following disorders- chest wall deformities, chest wall tumors, pleural effusion, lung abscess, bronchietasis, broncho genic carcinoma, bronchial adenomas, metastatic tumors of the lung, tracheomalacia, neoplasm's of the trachea, tumors of the mediastinum	8 10	This paper shall focus on Thoracic and Cardiac Surgeries .Surgical Oncology and its Surgical management.. The students will learn about Various chest wall deformities,causes and Surgical management.	5,6

TEXT BOOKS:

1. Davidson's Principles and Practice of Medicine
2. Harrison's Internal Medicine
3. Braunwald Text of Cardiology
4. Text Book of Cardiology by Hurst

REFERENCE BOOKS:

1. Cash's Textbook of General Medical and Surgical Conditions for Physiotherapists

RELATIONSHIP BETWEEN COURSE OUTCOMES (CO) AND PROGRAMME OUTCOMES

CO PO Mapping		
SN	**Course Outcome (CO)**	**Mapped Programme Outcome**
1	Acquainted with the knowledge about relevant aspects of general medicine.	**1,2,3,4,5,6,7,8**
2	Acquire the knowledge about the diseases the therapist would encounter in their practice.	**1,2,3,4,5,6,7,8**
3	List out the etiology, pathology, clinical features, and treatment methods for various medical conditions.	**1,2,3,4,5,6,7,8**
4	Acquainted with the knowledge and understanding about infection, diseases of blood and deficiency of nutrition.	**1,2,3,4,5,6,7,8**
5	Understand about the cardiovascular and respiratory diseases and its medical management.	**1,2,3,4,5,6,7,8**

SEMESTER – V									
Course Title	**CLINICAL NEUROLOGY AND NEUROSURGERY**								
Course code:	**23BPTO312R**	**Total Credits:3**	**L**	**T**	**P**	**S**	**R**	**O**	**C**
		Total Hours: 45T	**3**	**0**	**0**	**0**	**0**	**0**	**3**
Pre-Requisite	**Neuroanatomy, Pharmacology**	**Co-Requisite**	**General Medicine And General Surgery**						
Programme	**Bachelor in Physiotherapy**								
Semester	**5th**								
Course Objectives	1. To introduce the students to the concepts related Spinal cord disorders, Brain tumors and spinal tumors, Multiple sclerosis, Pediatric neurology, Polyneuropathy, Focal peripheral neuropathy. 2. To introduce the students about the concept of neuro surgeries, infection of brain & spinal cord.								
CO1	Impart and understand about the spinal cord injuries and disorders.								
CO2	Acquire knowledge about brain and spinal tumours, motor neuron diseases and muscle diseases.								
CO3	Acquire skill of clinical examination of a neonate /child with respect to neurological, Musculoskeletal, Respiratory & Cardiovascular conditions.								
CO4	Describe normal development & growth of a child.								
CO5	Acquire knowledge about neuro surgeries.								

Unit-No.	**Content**	**Contact Hour**	**Learning Outcome**	**KL**
I	Spinal cord disorders: Functions of tracts, definition, etiology, risk factors, pathophysiology, classification, clinical signs & symptoms, investigation, differential diagnosis, medical management, surgical management and complications of following disorders- Spinal cord injury, compression by IVD prolapse, spinal epidural abscess, transverse myelitis, viral myelitis, syringomyelia, spina bifida, sub-acute combined degeneration of the cord, hereditary spastic, paraplegia, radiation, myelopathy, progressive encephalomyelitis, conusmedullaris syndrome, bladder & bowel dysfunction and sarcoditis.	**9**	To learn about the Spinal cord disorders.	**1,2,3**
II	Brain tumors and spinal tumors: classification, clinical features, investigations, medical and surgical management. Motor neuron diseases: Etiology, Pathophysiology, Classifications, Clinical signs & symptoms, investigations, differential diagnosis, medical management, surgical management & complications of following disorders: Amyotrophic lateral sclerosis, Spinal muscular atrophy, Hereditary bulbar palsy, Neuromyotonia and post-irradiation lumbosacral polyradiculopathy. Introduction, indications and complication of following neuro surgeries: craniotomy, cranioplasty, stereotactic surgery, deep brain stimulation. Burr- hole shunting. Luminectomy, Hemilaminectomy, Rhizotomy, Micro vascular decompression surgery, Endarterectomy, Embolization, Pituitary surgery, Ablative surgery- Thalamotomy and pallidotomy, Coiling of aneurysm, Clipping of aneurysm and Neural implantation.	**9**	To learn about the motor neuron diseases, brain and spinal tumors and procedure of neuro surgeries	**1,2,3, 4**
III	Multiple sclerosis- etiology, pathophysiology, classification, clinical signs & symptoms, investigations and differential diagnosis, medical	**9**	To learn about thePediatric neurology, Muscles diseases	**1,2,3, 4**

	management and complications. Muscles diseases: classification, investigation, imaging methods, muscle biopsy , management of muscle diseases, classification, etiology, signs and symptoms of following disorders- muscular dystrophy, myotonic dystrophy, myopathy, non-dystrophic myotonia Pediatric neurology: neural development, etiology, pathophysiology, classification, clinical sign and symptoms, investigations, differential diagnosis, medical management, surgical management and complications of following disorders- Cerebral palsy, hydrocephalus, Arnold chiari malformation, autism, dandy walker syndrome and down syndrome			
IV	Disorders of neuromuscular junction- etiology, classification, signs & symptoms, investigations, management of following disorders- Myasthenia gravis, Lambert- Eaton syndrome and Botulism. Polyneuropathy- classification of polyneuropathies, hereditary motor sensory neuropathy, hereditary sensory & autonomic neuropathies, amyloid neuropathy. Acute idiopathic. Polyneuropathies. Guillain- Barre syndrome- causes, clinical features, management of GBS, chronic idiopathic polyneuropathies, diagnosis of polyneuropathy, nerve biopsy Therapeutic and diagnostic agent of toxicity, metal toxicity, environmental and physical insults, plant & fungal poisoning, animal poison and complications of organ transplantation	**9**	To learn about the Disorders of neuromuscular junction, polyneuropathy, metal toxicity etc	**1,2,3, 4.5,6**
V	Focal peripheral neuropathy: clinical diagnosis of focal neuropathy, neurotmesis, axonotmesis, neuropraxia. Etiology, risk factors, classification, neurological signs and symptoms, investigations, management of following disorders- RSD, nerve tumors, brachial plexus palsy, thoracic outlet syndrome, lumbosacral plexus lesion, phrenic and intercostal nerve palsy, median nerve palsy, ulnar nerve palsy, radial nerve palsy, musculocutaneous nerve palsy, anterior and posterior interosseous nerve palsy, axillary nerve palsy, long thoracic nerve palsy, suprascapular nerve palsy, sciatic nerve palsy, tibial nerve palsy,common peroneal nerve palsy, femoral nerve palsy, obturator nerve palsy, pudendal nerve palsy.	**9**	To learn about theperipheral neuropathy	**1,2,3, 4,5,6**

TEXT BOOKS:

1. Neurology and Neurosurgery IllustratedBy Kenneth W. Lindsay, Ian Bone, Geraint Fuller
2. Davidson's Principles and Practice of Medicine
3. Textbook of Neurology- Victor Adams
4. Brains Clinical Neurology.
5. Brains Diseases of Nervous System

REFERENCE BOOKS:

1. Snell's Clinical Neuroanatomy By Ryan Splittgerber
2. Physical rehabilitation by Susan B. O'Sullivan, Thomas J. Schmitz, George D. Fulk

RELATIONSHIP BETWEEN COURSE OUTCOMES (CO) AND PROGRAMME OUTCOMES

CO PO Mapping		
SN	**Course Outcome (CO)**	**Mapped Programme Outcome**
1	Impart and understand about the spinal cord injuries and disorders.	**1,2,3,4,5,6,7,8**
2	Acquire knowledge about brain and spinal tumours, motor neuron diseases and muscle diseases.	**1,2,3,4,5,6,7,8**
3	Acquire skill of clinical examination of a neonate /child with respect to neurological, Musculoskeletal, Respiratory & Cardiovascular conditions.	**1,2,3,4,5,6,7,8**
4	Describe normal development & growth of a child.	**1,2,3,4,5,6,7,8**
5	Acquire knowledge about neuro surgeries.	**1,2,3,4,5,6,7,8**

SEMESTER V										
Course Title	**GENERAL MEDICINE AND GENERAL SURGERY**									
Course code	**23BPTO313R**	**Total Credits: 2+2=4**	**L**	**T**	**P**	**S**	**R**	**O/F**	**C**
		Total Hours: 78T	**4**	**0**	**0**	**0**	**0**	**0**	**4**
Pre-Requisite	Human Anatomy, Human Physiology	**Co-Requisite**	Nil						
Programme	**Bachelor in Physiotherapy**								
Semester	**5th**								
Course Objectives	1. Impart the students to the concepts related to diseases of various systems of human body. 2. Introduce the students about the concept of medical management of various diseases. 3. Focuses on Concepts of Fluid and Electrolyte disturbances, Blood Transfusion and Nutrition in Surgery. 4. Introduce the students about Anaesthesia, Incisions Surgical Clips and Ligatures 5. This paper shall focus on Thoracic and Cardiac Surgeries .Surgical Oncology and its Surgical management.									
CO1	Acquire the knowledge about the diseases the therapist would encounter in their practice. List out the etiology, pathology, clinical features, and treatment methods for various medical conditions.									
CO2	Acquainted with the knowledge and understanding about infection, diseases of blood and deficiency of nutrition and understand the cardiovascular and respiratory diseases and its medical management.									
CO3	Understand about the various types of abdominal Incisions, list the muscles and nerves injuries and its indications and acquire the knowledge of various deformities of the chest wall, its causes and plan the Surgical management for those conditions.									
CO4	Plan the appropriate Surgical management for Cancer, and understand the types of cancer.									
CO5	Understand the steps & approaches in surgery & describe the components of soft tissues injury to reach target tissue & list out its complications. Classify, assess, evaluate & describe surgical management of Wounds.									

Unit-No.	**Content**	**Contact Hour**	**Learning Outcome**	**KL**
I	INFECTION: Different types of infection, sources & spread of infection, management of infection, sexually transmitted diseases- HIV infections and AIDS Food Poisoning and Gastroenteritis- Clinical features, Management. Common agents of POISONIGS- clinical features- general management, drug misuse, envenomation.	6	To learn about the infection and food poisoning.	1,2,3
	FOOD AND NUTRITION- vitamin and deficiency diseases, protein- energy malnutrition- clinical features and treatment, obesity and its related disorders: causes – complications, management of obesity, diet, exercise and medications.	6	To learn about the deficiency diseases.	
	DISEASES OF THE BLOOD: examinations of blood disorders- clinical manifestation of blood disease: anemia- signs and symptoms types and management: hemophilia - causes, clinical features- management.	6		
II	CARDIOVASCULAR DISEASE : examination of the cardio vascular system – COMMON investigations, ECG, exercise stress testing, clinical features, signs and symptoms, complications, management and treatment of the following diseases and	6	To learn about the cardiovascular diseases.	1,2,3,4

	disorders of the heart: pericarditis, myocarditis, rheumatic fever- Heart valve disorders, ischemic heart disease, congenital disorders of the heart, cardiac arrest, Hypertension: definitions, causes, classifications, investigations and management RESPIRATORY DISEASE: Examinations of the respiratory systems- investigations: chest radiographs, pulmonary function test. Clinical manifestations of lung diseases, upper respiratory tract infections; definition, aetiology, clinical features, signs and symptoms, complications, management and treatment of following lung diseases : chronic bronchitis, emphysema, asthma, Bronchiectasis, pneumonia, tuberculosis, fungal diseases, interstitial lung diseases, chronic obstructive lung disease. Respiratory Failure- definition, types, causes, clinical features, diagnosis and management	6	To learn about the respiratory diseases.	
III	Fluid, electrolyte and acid base disturbances- diagnosis and management; nutrition in the surgical patient; wound healingbasic process involved in wound repair, basic phases in the healing process, clinical management of wounds, factors affecting wound healing, scars- types and treatment, haemostasis components, haemostatic disorders, factors affecting bleeding during surgery, Transfusion therapy in surgery- blood components; general post- operative complications and its management,	12	Focuses on Concepts of Fluid and Electrolyte disturbances ,Blood Transfusion and Nutrition in Surgery.	5,6
IV	Indications for surgery; types of anesthesia and its effect on the patient; types of incision; clips ligatures and sutures; radiology diagnostic procedures, endoscopy, Biopsy- uses and types. Drainage systems and tubes used after surgery. Causes, clinical presentation, diagnosis and treatment following injury/ trauma in the thoracic cavity- Pneumothorax, Hemothorax, Fracture Rib injury to pericardium and pulmonary Contusion.	10 8	Introduce the students about Anaesthesia, Incisions Surgical Clips and Ligatures This paper shall focus on Thoracic and Cardiac Surgeries	5,6
V	Surgical oncology- cancer- definition, Different types of cancer – Ca breast, Ca oesophagus, Ca liver, CA Pancreas CA Colons. Surgical management. Disorders of the chest wall, lung and mediastinum- surgical management for the following disorders- chest wall deformities, chest wall tumors, pleural effusion, lung abscess, bronchietasis, broncho genic	8 10	This paper shall focus on Thoracic and Cardiac Surgeries. Surgical Oncology and its Surgical management.. The students will learn about Various chest wall deformities, causes and Surgical management.	5,6

	carcinoma, bronchial adenomas, metastatic tumors of the lung, tracheomalacia, neoplasm's of the trachea, tumors of the mediastinum			

TEXT BOOKS:

1. Davidson's Principles and Practice of Medicine
2. Harrison's Internal Medicine
3. Braunwald Text of Cardiology
4. Text Book of Cardiology by Hurst
5. CASH textbook of Surgery
6. S.DAS

REFERENCE BOOKS:

1. General Surgical Operations- by Kirk/ Williamson
2. Surgery by Nan
3. Baoley and Love's- Short practice of Surgery
4. Chest Disease by Crofton and Douglas.
5. Patrica A Downie, Text book of Heart, Chest Vascular Disease for Physiotherapist, JPBros.
7. SUSAN O SULLEVAN
8. CHAURASIA for Anatomy
9. Sembulingam for Physiology
10. Cash's Textbook of General Medical and Surgical Conditions for Physiotherapists

RELATIONSHIP BETWEEN COURSE OUTCOMES (CO) AND PROGRAMME OUTCOMES

CO PO Mapping		
SN	**Course Outcome (CO)**	**Mapped Programme Outcome**
1	Acquire the knowledge about the diseases the therapist would encounter in their practice. List out the etiology, pathology, clinical features, and treatment methods for various medical conditions.	**1,2,3,4,5,6,7,8**
2	Acquainted with the knowledge and understanding about infection, diseases of blood and deficiency of nutrition and understand the cardiovascular and respiratory diseases and its medical management.	**1,2,3,4,5,6,7,8**
3	Understand about the various types of abdominal Incisions, list the muscles and nerves injuries and its indications and acquire the knowledge of various deformities of the chest wall, its causes and plan the Surgical management for those conditions.	**1,2,3,4,5,6,7,8**
4	Plan the appropriate Surgical management for Cancer, and understand the types of cancer.	**1,2,3,4,5,6,7,8**
5	Understand the steps & approaches in surgery & describe the components of soft tissues injury to reach target tissue & list out its complications. Classify, assess, evaluate & describe surgical management of Wounds.	**1,2,3,4,5,6,7,8**

SEMESTER – V									
Course Title	**PT IN ORTHOPEDICS CONDITIONS**								
Course code	**23BPTO314R**	**Total Credits: 4**	**L**	**T**	**P**	**S**	**R**	**O/F**	**C**
		Total Hours: 30T+60P	**2**	**0**	**4**	**0**	**0**	**0**	**4**
Pre-Requisite	Human Anatomy, Human Physiology, Biomechanics of Human Motion, Clinical Orthopedics	**Co-Requisite**	Community Based Rehabilitation, Clinical Neurology, Pt in Neurological Conditions						
Programme	**Bachelor in Physiotherapy**								
Semester	**5th**								
Course Objectives	1. To introduce the students to the concepts related PT assessment for orthopedic conditions, Objective, Fractures, Palpation, Specific fracture in dislocations. 2. To introduce the students to the concepts related Degenerative and inflammatory conditions. 3. To introduce the students to the concepts related Infective conditions, Deformities, Poliomyelitis								
CO1	Acquire knowledge in orthopedics and traumatology with skills to apply these in clinical situations of dysfunction and musculoskeletal pathology.								
CO2	Identify disabilities due to musculoskeletal dysfunctions, also about the pathophysiology associated risk factor with its management .								
CO3	Plan and set treatment goals and apply the skills gained in exercise therapy and electrotherapy in these clinical situations to restore musculoskeletal function.								
CO4	Plan pre and post operative physiotherapy assessment, goals, precautions and PT management.								
CO5	Plan, prescribe and acquire the skill of executing of short and long PT treatment by selecting appropriate treatment tools for maximum functional independence in ADL at home and work place.								

Unit-No.	**Content**	**Contact Hour**	**Learning Outcome**	**KL**
I	PT assessment for orthopedic conditions – SOAP format, SUBJECTIVE,- history taking,infonnedconsent,personalhistory,pasthistory,medicalhistory, socio-economical history, chief complains, history of present illness, pain assessment – intensity ,character, aggravating factors, relieving factors, site and location. OBJECTIVE: On Observation- body built, swelling, muscles atrophy, deformities, and attitude of limb, posture and gait. On PALPATION: Tenderness, grades, muscle spasm, swelling- methods of swelling assessment. Bony prominence, soft tissue texture and integrity, vasomotor disturbances. On Examination: ROM-Active and passive, resisted isometric test, limb length- apparent true and segmental, girth measurement, muscle length testing, muscle tightness, contracture and flexibility, manual muscle testing, peripheral neurological examination- dermatomes ,myotomes and reflexes, Investigation, Special test and functional test, prescription of home Programme, documentation of the case records	5	1. This student will gain knowledge in orthopedics and traumatology with skills to apply these in clinical situations of dysfunction and musculoskeletal pathology. 2. The student will be able to identify disabilities due to musculoskeletal dysfunctions. 3. The student will be able to plan and set treatment goals and apply the skills gained in exercise therapy and electrotherapy in these clinical situations to restore musculoskeletal function	1,2,3,4
II	**FRACTURES-** Types, classification, signs, symptoms, complications, fracture healing factors affecting fracture healing. Principles of fracture management- reduction-open and closed, immobilization, sling, cast, brace, slab, traction, manual, mechanical, skin, skeletal, lumbar and cervical traction, external fixation, functional cast bracing, PT management in	11	1. This student will gain knowledge in orthopedics and traumatology with skills to apply these in clinical situations of dysfunction and musculoskeletal pathology. 2. The student will be able to identify disabilities due to	1,2,3

	complications early and late-shock, compartment syndrome , VIC, Fat embolism, delayed and malunion, RSD , myositis ossification, AVN, Pressure sores etc, Physiotherapy assessment in fracture cases ,Aims of PT management in fracture cases ,Short and long term goal, Principles of PT management in fractures-guidelines for fracture treatment during period of immobilization and guideline for treatment after immobilization period. **SPECIFIC FRACTURE IN DISLOCATIONS:** PT assessment and management of upper limb fractures and dislocations. PT assessment and management of lower limb fractures and dislocations including pelvic. PT assessment and management of spinal fractures. Selection and application of physiotherapeutic techniques, maneuver's, modalatie for preventive, curative and rehabilitative means in all conditions.		musculoskeletal dysfunctions. 3. The student will be able to plan and set treatment goals and apply the skills gained in exercise therapy and electrotherapy in these clinical situations to restore musculoskeletal function	
III	Principles of various schools of thought in manual therapy (briefly Maitland and Mckenzie) **DEGENERATIVE AND INFLAMMATORY CONDITIONS:** definition , signs and symptoms, clinical features ,path physiology , radiological features, medical and surgical management , Describe PT assessment and management for following conditions- Osteoarthritis –emphasis mainly on knee, hip and hand , rheumatoid arthritis , ankylosing spondylisis, gout , perthes disease , pariarhritic shoulder. **INFECTIVE CONDITIONS:** definition, signs and symptoms, clinical features , pathophysiology, radiological features , medical and surgical management for following conditions- osteomyelities- acute and chronic, septic arthritis , pyogenic arthritis , TB spine and major joints –knee and hip.	8	1. This student will gain knowledge in orthopedics and traumatology with skills to apply these in clinical situations of dysfunction and musculoskeletal pathology. 2. The student will be able to identify disabilities due to musculoskeletal dysfunctions. 3. The student will be able to plan and set treatment goals and apply the skills gained in exercise therapy and electrotherapy in these clinical situations to restore musculoskeletal function	1,2,3, 4,5
IV	Define, review the postural abnormalities of spine column, clinical features , deformities, medical and surgical management. Describe PT assessment and management and home Programme. **DEFORMITIES:** Review in detail the causes, signs and symptoms, radiological features, medical and surgical management. Describe the PT . Assessment and management of the following conditions. **Congenital:** CTEV , CDH, torticolis, pesplanus, pescavus and other common deformities Acquired: Scoliosis, Kyphosis, Coxavara, Genuvarum, valgum and recurvatum.	5	1. This student will gain knowledge in orthopedics and traumatology with skills to apply these in clinical situations of dysfunction and musculoskeletal pathology. 2. The student will be able to identify disabilities due to musculoskeletal dysfunctions. 3. The student will be able to plan and set treatment goals and apply the skills gained in exercise therapy and electrotherapy in these clinical situations to restore musculoskeletal function	2,3,4, 5,6

V	**Cerebral Palsy:** definition, etiology, classification, clinical features, complications, deformities, medical and surgical management and home Programme with special emphasis on carrying techniques.PT management after surgical conection. **POLIOMYEILITIS:** Definition, etiology, types, pathophysiology, cliniacal features, deformit ies, medical and surgical management. PT. Assessment and management after surgical connections and reconstructive surgeries- Emphasis on tendon transfer and home Programme.	4	1. This student will gain knowledge in orthopedics and traumatology with skills to apply these in clinical situations of dysfunction and musculoskeletal pathology. 2. The student will be able to identify disabilities due to musculoskeletal dysfunctions. 3. The student will be able to plan and set treatment goals and apply the skills gained in exercise therapy and electrotherapy in these clinical situations to restore musculoskeletal function	3,4,5,6
PRACTICAL	Practical shall be conducted for all the relevant topics discussed in theory in the following forms: 1. Bedside case presentations and case discussions 2. Lab sessions consisting of evaluation and assessment methods on student models, treatment techniques and practice sessions.	60	The objective of the course is that after the specified hours of practicals and demonstrations the student will be able to practice, demonstrate and apply various treatment techniques in musculoskeletal conditions.	1,2,3,4,5

TEXT BOOKS:

1. Tidy's physiotherapy
2. Clinical orthopaedic rehabilitation- Brotzman.
3. Textbook of orthopaedics-cash

REFERENCE BOOKS:

1. Orthopaedic physiotherapy- jayantjoshi.
2. Physical rehabilitation assessment and treatment

RELATIONSHIP BETWEEN COURSE OUTCOMES (CO) AND PROGRAMME OUTCOMES

CO PO Mapping		
SN	**Course Outcome (CO)**	**Mapped Programme Outcome**
1	Acquire knowledge in orthopedics and traumatology with skills to apply these in clinical situations of dysfunction and musculoskeletal pathology.	**1,2,3,4,5,6,7,8**
2	Identify disabilities due to musculoskeletal dysfunctions, also about the pathophysiology associated risk factor with its management .	**1,2,3,4,5,6,7,8**
3	Plan and set treatment goals and apply the skills gained in exercise therapy and electrotherapy in these clinical situations to restore musculoskeletal function.	**1,2,3,4,5,6,7,8**
4	Plan pre and post operative physiotherapy assessment, goals, precautions and PT management.	**1,2,3,4,5,6,7,8**
5	Plan, prescribe and acquire the skill of executing of short and long PT treatment by selecting appropriate treatment tools for maximum functional independence in ADL at home and work place.	**1,2,3,4,5,6,7,8**

SEMESTER – V										
Course Title	**PT IN NEUROLOGICAL CONDITIONS**									
Course code	**23BPTO315R**	**Total Credits: 4**	**L**	**T**	**P**	**S**	**R**	**O/F**	**C**
		Total Hours: 30T+60P	**2**	**0**	**4**	**0**	**0**	**0**	**4**
Pre-Requisite	Human Anatomy, Human Physiology, Exercise Therapy, Electro Therapy, Clinical Neurology	**Co-Requisite**	Community Based Rehabilitation.						
Programme	**Bachelor in Physiotherapy**								
Semester	**5th**								
Course Objectives	1. To introduce the students to the concepts related Neurological Assessment : Observation, palpation, Higher mental function, Motor examination, Reflexes, Sensory examination, Balance examination. 2. To impart the students to the concepts related knowledge in neurology and neurosurgery with skills to apply these in clinical situation of dysfunction and neurological pathology. 3. To introduce the students to the concepts related knowledge to plan and set treatment goals and set treatment goals and apply the skills gained in exercise therapy and electrotherapy in these clinical situations to restore neurological functions.								
CO1	Equipped with knowledge in neurology and neurosurgery skills to apply these in clinical situation of dysfunction and neurological pathology.								
CO2	Identify disabilities due to neurological dysfunction.								
CO3	Plan and set treatment goals and apply the skills gained in exercise therapy and electrotherapy in these clinical situations to restore neurological functions.								
CO4	Acquired with the knowledge of normal neurodevelopment, with specific reference to locomotion								
CO5	Advice & give parents education in Neuro-pediatric care.								

Unit-No.	**Content**	**Contact Hour**	**Learning Outcome**	**KL**
I	**Neurological Assessement:** I. Required materials forex amination ii.Chief complaints iii. History taking- present, past, medical, familial, personal histories iv.Observation, palpation v.Higher mental function- consciousness, orientation, wakefulness, memory, speech, reading, language, writing, calculations, perception, left right confusion, reasoning and judgement. vi. Motor examination- muscle power, muscle tone, spasticity ,flaccidity vii. Reflexes- developmental, superficial, deep tendon reflexes viii. Sensory examination- superficial, deep, cortical sensations ix.Special tests- Romberg's test, kernig's sign, battle's sign, glabellar tap signetc x.Balance examination, co – ordinationexamination xi.Gait analysis- kinetics and kinematics (quantitative and qualitativeanalysis) xii.Functional analysis, assessment tools and scales- modified ash worth scale, berg balance scale, FIM scale. Barthel index, GCS, Mini Mental state examination, Rancho Los Amigos Scale for head injury, APGAR score, ASIA Scale, Reflex grading, Differential diagnosis	19 Hrs	The students should be able to do a proper and detailed assessment of Neurological conditions.	1,2,3, 4

II	Neuro physiological Techniques: i. Concepts, principles, Techniques ii. Effects of following Neuro physiological Techniques– NDT, PNF, Roods sensory motor approach, Sensory Integration Approach, Brunnsstorm movement therapy, MRP, Contemporary task oriented approach, Muscle re-education approach and constraint induced movement therapy	19 Hrs	The students should be able to demonstrate and perform various Neuro physiological techniques.	1,2,3
III	Paediatric Neurology: i)Paediatric examination, developmental milestones, developmental reflexes ii)Neuro developmental screening tests iii)History , observation, palpation, milestone examination, motor and sensory examination, reflex testing, differential diagnosis, balance and co- ordination examination iv)Gait analysis- functional analysis, list of problems and complications, short and long term goals v)Management of systemic complications, management of mechanical complications vi)Use of various neurophysical approaches and modalities in risk babies, minimum brain damage, developmental disorders, CP, Autism, Down's Syndrome ,Hydrocephalus, Chorea, Spina bifida, Syringomyelia	18 Hrs	The students should be able to do a proper and detailed assessment and techniques of management of Paedsiatric Neuro Conditions.	1,2,3, 4,5
IV	Evaluation and management of Brain & Spinal cord Disorders: i)History, observation, palpation, higher mental function, Cranial nerve examination, motor and sensory examination, reflex testing, differential diagnosis, balance and co- ordination examination ii)Gait analysis- functional analysis, list of problems and complications, short and long termgoals iii)Management of systemic complications, management of mechanical complications	18 Hrs	The students should be able to do a detailed assessment and management of Brain and Spinal cord Disorders.	2,3,4, 5,6
V	Use of various neurophysical approaches and modalities in CVA, Meningitis, Encephalitis, Head injury, Brain tumours, Perpetual disorders, Amyotrophic lateral Sclerosis, Multiple Sclerosis	16 Hrs	The students should be able to demonstrate the uses of various neurophysical approaches and modalities.	1,2,3, 4,5,6
PRACTICAL	Practical shall be conducted for all the relevant topics discussed in theory in the following forms: 1. Bedside case presentations and case discussions 2. Lab sessions consisting of evaluation and assessment methods on student models, treatment techniques and practice sessions.	60	The objective of the course is that after the specified hours of practicals and demonstrations the student will be able to practice, demonstrate and apply various treatment techniques in neurological conditions.	1,2,3, 4,5

TEXT BOOKS:

1. Tidy's physiotherapy
2. Cash's Textbook of Neurology for physiotherapists

REFERENCE BOOKS:

1. Neurological rehabilitation by DUmphred.
2. Physical rehabilitation Assessment and treatment – O' Sullivan Schmitz

RELATIONSHIP BETWEEN COURSE OUTCOMES (CO) AND PROGRAMME OUTCOMES

CO PO Mapping		
SN	**Course Outcome (CO)**	**Mapped Programme Outcome**
1	Equipped with knowledge in neurology and neurosurgery skills to apply these in clinical situation of dysfunction and neurological pathology.	**1,8**
2	Identify disabilities due to neurological dysfunction.	**1,2,8**
3	Plan and set treatment goals and apply the skills gained in exercise therapy and electrotherapy in these clinical situations to restore neurological functions.	**3,6,8**
4	Acquired with the knowledge of normal neurodevelopment, with specific reference to locomotion	**1,8**
5	Advice & give parents education in Neuro-pediatric care.	**7,8**

SEMESTER – V									
Course Title	**COMMUNITY MEDICINE**								
Course code	**23BPTO316R**	**Total Credits:3**	**L**	**T**	**P**	**S**	**R**	**O/F**	**C**
		Total Hours: 30T	**3**	**0**	**0**	**0**	**0**	**0**	**3**
Pre-Requisite	Human Anatomy, Human Physiology	**Co-Requisite**	GENERAL MEDICINE -I						
Programme	**Bachelor in Physiotherapy**								
Semester	**5th**								
Course Objectives	1.To introduce the students to the concepts of community health, prevention of disease and promotion of health in physiotherapy field practice. 2.The objective of this course is that after 48hrs of lectures the student will be able to understanding of various aspects of health and disease, methods of health administration, health education, nutrition, disaster management, hospital waste management, occupational disease, health problems of vulnerable group and their preventive measures.								
CO1	Acquainted with the principles and get the knowledge about common health problems at individual and community levels keeping in mind the existing health care.								
CO2	Familiarize with primary health and disease, epidemiology of communicable and non-communicable disease, disaster management, hospital waste management, occupational disease, public health and national Programmes of India.								
CO3	Identify health problems and provide community health care services based on their needs.								
CO4	Access and appraise scientific information and carry out epidemiological research by identifying gaps and present the finding of research.								
CO5	Apply the basic concept of health and focus on health needs at community level considering social, cultural, economic and demographic context.								

Unit-No.	**Content**	**Contact Hour**	**Learning Outcome**	**KL**
I	General concept of health and disease, Health Administration setup and Central and State levels. Health care delivery Programmes in urban and rural areas.	**7 hours**	Learn about common health and disease, Health Administration setup	1,2,3
II	Principles and methods of Epidemiology, Epidemiology of communicable diseases like Viral hepatitis, Malaria, Chicken pox, Tuberculosis and Epidemiology of non-communicable diseases like coronary heart disease, cancer, obesity.	**10 hours**	Learn about Epidemiology pattern, Epidemiology of communicable diseases and non-communicable diseases	1,2,3
III	Occupational health: Definition, occupational disease and hazards. Social security and other measures for the protection of occupational hazards. Metal Health –definition, role of physiotherapists in Mental Health. Health education, Objectives, Methods of health education: Individual and group methods.	**12 hours**	Learn about Occupational health, Metal Health and Health education	1,2,3,4
IV	Nutrition and Health: Classification of foods, Nutritional problems in public health, Environment and Health- Water and air pollution, Disposal of waste. Hospital waste management: Sources of hospital waste, Health hazards	**12 hours**	Learn about Nutrition and Health, Environment and Health, Hospital waste management:	1,2,3,4.
V	Disaster Management: Natural and man-made disasters, Disaster impact and response. Disaster preparedness. Management of health problems of Vulnerable group.	**7 hours**	Learn about Disaster Management and Management of health problems of Vulnerable group.	1,2,3,4

TEXT BOOKS:

1. Textbook of Preventive & Social Medicine, Dr. J E Park
2. IAPSM's Textbook of Community Medicine, AM Kadri

REFERENCE BOOKS:

1. Handbook of Community Medicine, Mangala Subramanlan.

RELATIONSHIP BETWEEN COURSE OUTCOMES (CO) AND PROGRAMME OUTCOMES

CO PO Mapping		
SN	**Course Outcome (CO)**	**Mapped Programme Outcome**
1	Acquainted with the principles and get the knowledge about common health problems at individual and community levels keeping in mind the existing health care.	**1,2,3,4,5,6,8**
2	Familiarize with primary health and disease, epidemiology of communicable and non-communicable disease, disaster management, hospital waste management, occupational disease, public health and national Programmes of India.	**1,2,3,4,6,7,8**
3	Identify health problems and provide community health care services based on their needs.	**1,2,3,4,5,6,7,8**
4	Access and appraise scientific information and carry out epidemiological research by identifying gaps and present the finding of research.	**1,2,3,4,5,6,7,8**
5	Apply the basic concept of health and focus on health needs at community level considering social, cultural, economic and demographic context.	**1,2,3,4,5,6,7,8**

SEMESTER – V									
Course Title	**EXTRACURRICULAR ACTIVITIES/CO-CURRICULAR ACTIVITIES**								
Course code	**23UBEC311/23UBCC311**	**Total Credits:1**	**L**	**T**	**P**	**S**	**R**	**O/F**	**C**
		Total Hours:	**0**	**0**	**0**	**4**	**0**	**0**	**1**
Pre-Requisite	Human Anatomy, Human Physiology	**Co-Requisite**	GENERAL MEDICINE -I						
Programme	**Bachelor in Physiotherapy**								
Semester	**5th**								
Course Objectives	It is to develop the social and soft skills and to promote a holistic development of the learners								
Course Outcome	The students will be engaged in different activities headed under different clubs, namely dance, music, photography, drama, literacy, etc. The students will participate in regular club activities like workshops and competitions as per their interests and hobbies. The students will be trained to represent ADTU in various inter-university, state, and national-level competitions. The students will be given a platform to learn from invited experts in their respective fields. The students will get an exposure of 360-degree learning methodology, considering the overall growth along with the academics.								

Content

AdtU encourages a range of activities outside the regular curriculum intended to meet learner's interest. These activities are aimed to develop the social and soft skills and promote a holistic development of the learners. Keeping in mind the 360-degree learning methodology, the students are engaged in different activities headed under different clubs viz. Dance, Music, Photography, Drama, Literary, etc. The students are encouraged to participate in regular club activities, workshops, and competitions as per their interest and hobbies. The student members of the club are trained to represent AdtU in various inter-university, student, and national-level competitions. Renowned personalities are invited to conduct workshops that benefit the members and students by giving them the platform to learn from experts in their respective fields.

Co-curricular activities in physiotherapy focus on enhancing both academic learning and professional development within the department. These activities often include interdepartmental seminars, workshops, hands-on clinical practice, and case study discussions, where students can engage with faculty and peers. Additionally, departmental events such as physiotherapy awareness campaigns, fitness sessions, and health screenings provide opportunities for students to actively contribute to community wellness while honing their clinical and communication skills. These activities help foster a collaborative learning environment, encourage leadership, and prepare students for the demands of real-world physiotherapy practice.

SEMESTER – VI									
Course Title	**GENERAL MEDICINE AND GENERAL SURGERY**								
Course code	**23BPTO321R**	**Total Credits: 3**	**L**	**T**	**P**	**S**	**R**	**O/F**	**C**
		Total Hours: 60	**3**	**0**	**0**	**0**	**0**	**0**	**3**
Pre-Requisite	PHYSIOLOGY, PHARMACOLOGY, GENERAL SURGERY	**CO-REQUISITE**	NIL						
Programme	**Bachelor in Physiotherapy**								
Semester	**6th**								
Course Objectives	1. To introduce the students to the concepts related Endocrine diseases, Diseases of the digestive system, Diseases of the skin, Paediatrics, Psychiatric disorders. 2. To introduce the students about the concept of medical management of various diseases. 3.Focuses on Concepts of Heart diseases. Congenital and Acyanotic heart disease and its Surgical management. 4.Introduce the students about Thoracic surgeries its Indications and an Overview of Cardiac Surgeries. 5.This paper shall focus on diseases about Arteries and Veins. ENT and Opthalmology								
CO1	List out the etiology, pathology, clinical features and treatment methods for various medical conditions. Acquainted with the knowledge of various diseases the therapist would encounter in their practice.								
CO2	Plan out the diagnoses for various kinds of diseases of Endocrine and the diseases of the digestive system along with the knowledge of Diseases of the skin, Paediatric conditions as well as Psychiatric disorders.								
CO3	Acquainted with the knowledge of various types of heart diseases and Thoracic and Cardiac Surgeries Procedures and common operations and incisions made and impart the knowledge of Burns and surgical management.								
CO4	List out the common problems of ear and plan out its management with the definition of facial palsy classification, medical and surgical management of lower motor neuron type of facial palsy.								
CO5	Plan out the surgical management for ophthalmologic conditions and classify, assess, evaluate & describe the surgical management Head Injuries.								

Unit-No.	**Content**	**Contact Hour**	**Learning Outcome**	**KL**
I	ENDOCRINE DISEASES: common presenting symptoms of endocrine disease – common classical disease presentations , clinical features and its management; diabetes mellitus ; aetiology and pathogenesis of diabetes- clinical manifestations of the disease- management of the disease- complications of diabetes DISEASES OF THE DIGESTIVE SYSTEM: clinical manifestations of gastro intestinal disease – aetiology , clinical features, diagnosis , complications ,and treatment of the following conditions: reflux , oesophagitis , achlasia Cardia , carcinoma of oesophagus, GI bleeding, peptic ulcer disease, carcinoma of stomach , pancreatitis, mal absorption syndrome, ulcerative colitis, peritonitis, infections of alimentary tracts; clinical manifestations of liver diseases – aetiology , clinical features, diagnosis, complications and treatment of the following conditions: viral hepatitis , wilson's disease, alphal- antitrypsin deficiency, tumors of the liver, gall stones, cholycystitis	6 6	To learn about the endocrine diseases To learn about the diseases of the digestive system.	1,2,3,4
II	DISEASES OF THE SKIN : examination and clinical manifestations of skin diseases; causes , clinical features and management of the following	6	To learn about the diseases of the skin.	1,2,3,4

	skin conditions : leprosy , psoriasis, pigmentary anomalies, vasomotor disorders, dermatitis, coccal and fungal parasitic and viral infections. PEDIATRICS: problems and management of LBW infants, perinatal problems and management , congenital abnormalities and management , respiratory conditions of childhood , cerebral palsy- causes, complications , clinical manifestations , treatment ; spina bifida – management and treatment , epilepsy- types, diagnosis and treatment; recognizing developmental delay , common causes of delay; orthopaedic and neuromuscular disorders in childhood , clinical features and management; sensory disorders – problems resulting from loss of vision and hearing ; learning and behavioral problems – hyperactivity , autism , challenging behaviours, educational delay , the clumsy child. PSYCHIATRIC DISORDERS : classifications , causes , clinical manifestations and treatment methods used in psychiatry	6 6	To learn about the paediatrics problems. To learn about the psychiatric disorders	
III	**Surgical Management of congenital and ischemic heart diseases**- acyanotic congenital heart disease and cyanotic congenital heart disease: patient ductus arteriosus, coarctation of aorta, atrial septal defect , ventricular septal defect, tetralogy of fallot, transposition of great vessels ,– coronary heart disease , cardiac tumors **Thoracic surgeries- thoracotomy** – definition, types of incisions with emphasis to the site of incision, muscles cut and complications .lung surgeries: pnumonectomy, lobectomy, segmentectomy- indications, physiological changes and complications; thoracoplasty ,pleurectomy, pleurodesis and decortications of the lung. Cardiac surgeries – an overview of the cardiopulmonary bypass machine- extracardiac operations , closed heart surgery, open heart surgery: transplant surgery- heart, lungs and kidney-indications , physiological changes and complications	**6**	The students will be able to understand about various types of Heart diseases about Thoracic and Cardiac Surgeries.	5,6,7,8
IV	**Diseases of the arteries and veins**: definition, aetiology, clinical features, signs and symptoms, complications, management and treatment of the following diseases: arteriosclerosis, atherosclerosis, aneurysm, buerger's disease, raynaud's disease, thrombophlebitis, deep vein thrombosis, pulmonaty embolism, varicose veins. **Definitions**, indication, incision , physiological changes and complications following common operations like cholecystectomy, colostomy, ileostomy, gastrectomy, hernias , appendicectomy, mastectomy , neprectomy, prostectomy.	5	This paper shall focus on diseases about Arteries and Veins. ENT and Opthalmology	5,6,7,8

V	**Burn**: definition, classification, causes, prevention, pathological changes, complications, clinical features and management. Skin grafts – types , crafting 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.	19	The students will come to know about Burns and its complications and its surgical management.Definitions, indication, incision , physiological changes and complications The students will also know about 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. Ophthamology : ophthamologic surgical conditions, refraction's, conjunctivities, glaucoma, corneal ulcer, iritis, cataract, retinitis, detachment of retina, defects of extra- ocular muscles- surgical management	5,6,7,8

TEXT BOOKS:

1. Davidson's Principles and Practice of Medicine
2. Harrison's Internal Medicine
3. Braunwald Text ofCardiology
4. Text Book of Cardiology by Hurst
5. General Surgical Operations – by Kirk /Williamson
6. Surgery byNan
7. Bailey and Love's – Short Practice of Surgery
8. Chest Disease by Crofton and Douglas

REFERENCE BOOKS:

1. Cash's Textbook of General Medical and Surgical Conditions for Physiotherapists
2. Patrica A Downie, Text book of Heart, Chest Vascular Disease for physiotherapists, JP Bros

RELATIONSHIP BETWEEN COURSE OUTCOMES (CO) AND PROGRAMME OUTCOMES

CO PO Mapping		
SN	**Course Outcome (CO)**	**Mapped Programme Outcome**
1	List out the etiology, pathology, clinical features and treatment methods for various medical conditions. Acquainted with the knowledge of various diseases the therapist would encounter in their practice.	**1,2,3,4,5,6,7,8**
2	Plan out the diagnoses for various kinds of diseases of Endocrine and the diseases of the digestive system along with the knowledge of Diseases of the skin, Paediatric conditions as well as Psychiatric disorders.	**1,2,3,4,5,6,7,8**
3	Acquainted with the knowledge of various types of heart diseases and Thoracic and Cardiac Surgeries Procedures and common operations and incisions made and impart the knowledge of Burns and surgical management.	**1,2,3,4,5,6,7,8**
4	List out the common problems of ear and plan out its management with the definition of facial palsy classification, medical and surgical management of lower motor neuron type of facial palsy.	**1,2,3,4,5,6,7,8**
5	Plan out the surgical management for ophthalmologic conditions and classify, assess, evaluate & describe the surgical management Head Injuries.	**1,2,3,4,5,6,7,8**

SEMESTER – VI									
Course Title	**PT IN ORTHOPEDICS CONDITIONS**								
Course code	**23BPTO322R**	**Total Credits: 4**	**L**	**T**	**P**	**S**	**R**	**O/F**	**C**
		Total Hours: 30T+60P	2	0	4	0	0	0	4
Pre-Requisite	Human anatomy, Human Physiology, Biomechanics of Human Motion, Clinical Orthopedics	**Co-Requisite**	Community Based Rehabilitation, Clinical Neurology, PT in Neurological Conditions						
Programme	**Bachelor in Physiotherapy**								
Semester	**6th**								
Course Objectives	1. To introduce the students to the concepts related Leprosy, Amputations, Spinal conditions. 2. To introduce the students on the effects of spinal traction, Osteoporosis, Orthopaedics surgeries, Shoulder joint, Elbow and forearm, Wrist and hand, Hip, Ankle and foot. 3. To introduce the students the introduction to Bio-engineering, Sports physiotherapy, Applied yoga in orthopedic conditions, Knee.								
CO1	Integrate the knowledge gained by the students in orthopedics and traumatology with skills to apply these in clinical situations of dysfunction and musculoskeletal pathology of wrist elbow and wrist.								
CO2	Identify disabilities due to musculoskeletal dysfunctions.								
CO3	Plan and set treatment goals and apply the skills gained in exercise therapy and electrotherapy in these clinical situations to restore musculoskeletal function of hip knee and ankle joints.								
CO4	Plan sports specific protocols for treatment and training the individuals involved in different sports activities.								
CO5	Acquire proper knowledge of orthotics and prosthetics and prescribe those on impaired and disable persons.								

Unit-No.	**Content**	**Contact Hour**	**Learning Outcome**	**KL**
I	Leprosy: Definition, cause, clinical features, medical and surgical management. PT assessment, aims, and management after surgical procedures such as tendon transfer both pre and post operatively. Amputations: Definition, levels, indications, types, PT assessment, aims, management pre and post operatively. PT management with emphasis on stump care and bandaging. Pre and post prosthetic training, checking out prosthesis, complications of amputations and its management. Spinal conditions: Review thaw causes, signs and symptoms ,investigations, radiological features, neurological signs, Pt assessment aims and management and home Programme of the following conditions: Cervical spondylosis, Lumbarspondylosis, spondyololisthesis, spinal canal stenosis, spondylolysis, sacro iliac joint dysfunction, sacralisation, lumbarisation, ntervetrebral disc prolapsed, occydynia, spina bifida occulta. Effects of spinal traction, types of traction , modes of application, indications for spinal traction, contraindications, precautions, limitations of traction.	9	This subject serves to integrate the knowledge gained by the students in orthopedics and traumatology with skills to apply these in clinical situations of dysfunction and musculoskeletal pathology.	1,2, 3,4

II	Osteoporosis- Causes, pre disposing factors, investigations and treatment. Orthopaedics surgeries: Pre and post operative PT assessment, goals, precautions and PT management of following surgeries such as: Athrodesis, Osteotomy, arthroplasty- Partial and total – excision arthroplasty, excision arthroplasty with implant, inter positional arthroplasty and total replacement; tendon transplant soft tissue release, tenotomy ,myotomy, lengthening; arthroscopy, spinal stabilization, re-attachment of limbs, external fixators, synovectomy.	4	Students should be able to plan and set treatment goals and apply the skills gained in exercise therapy and electrotherapy in these clinical situations to restore musculoskeletal function.	1,2, 3
III	Shoulder joint: Shoulder instabilities , TOS, RSD, Impingment syndrome- conservative and post operative PT management. Total shoulder replacement and hemi replacement. Post operative Pt management. AC joint injuries-rehabilitation. Rotator cuff tears conservative and surgical repair. Sub acromial decompression.Post operative PT management. Elbow and forearm: Excision of radial head-Post operative PT management. Total elbow arthroplasty. Post operative PT management. Wrist and hand: Total wrist arthroplasty. Repair of rupture extensor tendon. Carpal tunnel syndrome. Flexor and extensor tendon laccrations. Post operative Pt management.	8	This subject serves to integrate the knowledge gained by the students in orthopedics and traumatology with skills to apply these in clinical situations of dysfunction and musculoskeletal pathology.	1,2, 3,4, 5
IV	Hip: joint surgeries- hemi and total hip replacement- Post operative PT management, tendinitis and bursitis- PT management. Knee lateral retinacular release, chondroplasty-post operative management. Realignment of extensor mechanism. ACL and PCL reconstruction surgeries- Post operative rehabilitation. Meniscectomy and meniscal repair- Post operative management. Plica syndrome, patellar dysfunction and Hoffa's syndrome-Conservative management TKR and rehabilitation protocol. Patellar tendon ruptures and patellectomy rehabilitation. Ankle and foot: Ankle instability. Ligamentus tears Post operative management.	6	This subject serves to integrate the knowledge gained by the students in orthopedics and traumatology with skills to apply these in clinical situations of dysfunction and musculoskeletal pathology.	2,3, 4,5, 6
V	Introduction to Bio-engineering: Classification of orthosis and prosthesis: biomechanical principles of orthotic and prosthetic application; designing of upper extremity Sports physiotherapy: physical fitness, stages of soft tissue healing, treatment guideline for soft tissue injuries, acute, sub acute and chronic stages. Repair of soft tissue rupture. Soft tissue injuries-prevention and rehabilitation of lateral ligaments sprain of ankle, rotator cuff injuries, collateral and cruciate injuries of knee, meniscal injuries of knee, supraspinatus and	4	The objective of the course is that after the specified hours of lectures and demonstrations the student will be able to identify disabilities due to musculoskeletal dysfunctions.	3,4, 5,6

	bicipital tendinities, prepatellar and sub acromial bursitis, tennis and golfer elbow, hamstring strain, quadriceps contusion and TA rupture, dequervain's tenosinovitis, trigger and mallet finger, planter fasciitis, wrist sprain. Applied yoga in orthopedic conditions.			
PRACTICAL	Practical shall be conducted for all the relevant topics discussed in theory in the following forms: 1. Bedside case presentations and case discussions 2. Lab sessions consisting of evaluation and assessment methods on student models, treatment techniques and practice sessions.	60	The objective of the course is that after the specified hours of practicals and demonstrations the student will be able to practice, demonstrate and apply various treatment techniques in musculoskeletal dysfunctions.	1,2, 3,4, 5

TEXT BOOKS:

1. Tidy's Physiotherapy
2. Clinical orthopaedic rehabilitation-Brotzman.
3. Textbook of orthopaedics-cash

REFERENCE BOOKS:

1. Orthopedic physiotherapy- Jayant joshi
4. Physical rehabilitation assessment and treatment

RELATIONSHIP BETWEEN COURSE OUTCOMES (CO) AND PROGRAMME OUTCOMES

CO PO Mapping		
SN	**Course Outcome (CO)**	**Mapped Programme Outcome**
1	Integrate the knowledge gained by the students in orthopedics and traumatology with skills to apply these in clinical situations of dysfunction and musculoskeletal pathology of wrist elbow and wrist.	**1,2,3,4,5,6,7,8**
2	Identify disabilities due to musculoskeletal dysfunctions.	**1,2,3,4,5,6,7,8**
3	Plan and set treatment goals and apply the skills gained in exercise therapy and electrotherapy in these clinical situations to restore musculoskeletal function of hip knee and ankle joints.	**1,2,3,4,5,6,7,8**
4	Plan sports specific protocols for treatment and training the individuals involved in different sports activities.	**1,2,3,4,5,6,7,8**
5	Acquire proper knowledge of orthotics and prosthetics and prescribe those on impaired and disable persons.	**1,2,3,4,5,6,7,8**

SEMESTER – VI									
Course Title	**PT IN NEUROLOGICAL CONDITIONS**								
Course code	23BPTO323R	**Total Credits: 4**	**L**	**T**	**P**	**S**	**R**	**O/F**	**C**
		Total Hours: 30T+60P	**2**	**0**	**4**	**0**	**0**	**0**	**4**
Pre-Requisite	Human Anatomy, Human Physiology, Exercise therapy, Electro therapy, Clinical Neurology	**CO-REQUISITE**	Community based Rehabilitation.						
Programme	**Bachelor in Physiotherapy**								
Semester	**6th**								
Course Objectives	1. To introduce the students to the concepts related Evaluation and Management of Cerebellar, Spinal cord and Muscle disorders. 2. To impart the students to the concepts related analysis, Evaluation and Management of Peripheral nerve, Injuries and Disorders, Assessment and Management of Neurological Gaits, Pre & Post-surgical assessment & treatment. 3. To introduce the students to the concepts related to Yoga in neurological conditions.								
CO1	Acquire the knowledge in neurology and neurosurgery with skills to apply these in clinical situation of dysfunction and neurological pathology.								
CO2	Identify disabilities due to neurological dysfunction.								
CO3	Plan and set treatment goals and set treatment goals and apply the skills gained in exercise therapy and electrotherapy in the clinical situations to restore neurological functions.								
CO4	Plan, prescribe & execute short term & long term treatment, with special reference to relief of Neuropathic & psycho-somatic pain, mat exercises, functional re-education, gait training, postural & functional training for A.D.L., ergonomic								
CO5	Equipped with the basic understanding of Yoga for neurological conditions.								

Unit-No.	**Content**	**Contact Hour**	**Learning Outcome**	**KL**
I	**Evaluation and Management of Cerebellar, Spinal cord and Muscle disorders:** i) History, observation, palpation, motor and sensory examination, reflex testing, differential diagnosis, balance and co-ordination examination ii) Gait analysis- functional analysis, list of problems and complications, short and long termgoals iii) Management of systemic complications, management of mechanical complications iv) Use of various neurological approaches and modalities in Ataxia, Sensory ataxia, Parkinson's disease, Muscular dystrophy(DMD), Myasthenia gravis, Eaton- Lambert Syndrome, Spinal tumours, Spinal cord injury, Transverse myelitis, Bladder & Bowel dysfunction, Spinal muscular atrophies, Poliomyelitis, Post Polio Syndrome	19	The students should be able to do a proper evaluation and management of cerebellar ,spinal cord and muscle disorders.	1,2,3,4
II	**Evaluation and Management of Peripheral nerve Injuries and Disorders :** i) History, observation, palpation, motor and sensory examination, reflex testing, differential diagnosis, balance and co-	19	The students should be able to do a proper evaluation and management Peripheral nerve Injuries and Disorders	1,2,3

	ordinationexamination. ii) Management of systemic complications, management of mechanicalcomplications iii) Use of various neurological approaches and modalities in Hereditary motor sensory neuropathy, Gullian- Barre Syndrome, Brachial plexus palsy, Thoracic outlet Syndrome, Lumbosacral plexus lesions, Phrenic and intercostals nerve lesions, Median nerve palsy, Ulnar nerve palsy, Radial nerve palsy, Axillary nerve palsy, Long Thoracic nerve palsy, Suprascapular nerve palsy, Sciatic nerve palsy, Tibial nerve palsy, Common Peroneal nerve palsy, Femoral nerve palsy,Obturator iii) nerve palsy and Pudendal nerve palsy			
III	**Assessment and Management of Neurological Gaits:** i) Quantitative (kinetics & kinematics) analysis ii) List of problems, short & long term goals iii) Management of following neurological gaits: Hemiplegic gait, Parkinson's gait, High Step gait, Hyperkinetic gait, Hypokinetic gait, Waddling gait, Scissoring gait, Choreoformgait, Diplegic gait, Myopathic gait	18	The students should be able to do a proper assessment and management of Neurological Gaits.	1,2,3,4,5
IV	**Pre &Post surgical assessment & treatment:** i) Spinal disc herniation, Spinalstenosis, Spinal cord trauma ii) Head trauma, Brain tumours, Tumours of spine, Cerebral Aneurysm, Subarachnoid Haemorrhage, Epilepsy, Parkinson's disease, Chorea, Hemiballism, Psychiatric disorders, Malformation of the Nervous System, Carotid artery stenosis, Arteriovenous malformations &Spinal bifida	18	The students should be able to do a proper **assessment** and management Pre and Post surgical conditions.	2,3,4,5,6
V	**Yoga:** Applied Yoga in neurological conditions	16	The student will be able to learn the basic Yoga for neurological conditions.	1,2,3,4,5,6
PRACTICAL	Practical shall be conducted for all the relevant topics discussed in theory in the following forms: 1. Bedside case presentations and case discussions 2. Lab sessions consisting of evaluation and assessment methods on student models, treatment techniques and practice sessions.	60	The objective of the course is that after the specified hours of practicals and demonstrations the student will be able to practice, demonstrate and apply various treatment techniques in neurological disorders.	1,2,3,4,5

TEXT BOOKS:

1. Physical rehabilitation Assessment and treatment – O' Sullivan Schmitz
2. Cash's Textbook of Neurology for physiotherapists

REFERENCE BOOKS:

1. Neurological rehabilitation by D Umphred
2. Tidy's physiotherapy

RELATIONSHIP BETWEEN COURSE OUTCOMES (CO) AND PROGRAMME OUTCOMES

CO PO Mapping		
SN	**Course Outcome (CO)**	**Mapped Programme Outcome**
1	Acquire the knowledge in neurology and neurosurgery with skills to apply these in clinical situation of dysfunction and neurological pathology.	**1,8**
2	Identify disabilities due to neurological dysfunction.	**1,2,8**
3	Plan and set treatment goals and set treatment goals and apply the skills gained in exercise therapy and electrotherapy in the clinical situations to restore neurological functions.	**3,6,8**
4	Plan, prescribe & execute short term & long term treatment, with special reference to relief of Neuropathic & psycho-somatic pain, mat exercises, functional re-education, gait training, postural & functional training for A.D.L., ergonomic	**3,6,8**
5	Equipped with the basic understanding of Yoga for neurological conditions.	**1,8**

SEMESTER – VI									
Course Title	**PT IN CARDIOTHORACIC CONDITIONS AND GENERAL CONDITIONS**								
Course code	**23BPTO324R**	**Total Credits: 4**	**L**	**T**	**P**	**S**	**R**	**O/F**	**C**
		Total Hours: 30T+60P	**2**	**0**	**4**	**0**	**0**	**0**	**4**
Pre-Requisite	Human Anatomy, Human Physiology, Exercise therapy, Electro therapy.	**Co-Requisite**	NIL						
Programme	**Bachelor in Physiotherapy**								
Semester	**7th**								
Course Objectives	1. To introduce the students to the concepts related Cardiopulmonary system, Anatomical & physiological differences, Physiotherapy techniques, Drug Therapy. 2. To impart the students to the concepts related Investigations and tests of Cardiopulmonary system. 3. To make the students understand about the concepts related general health conditions..								
CO1	Apply the knowledge in assessing and planning Physiotherapy interventions for various cardiothoracic general, medical, and surgical conditions.								
CO2	Monitor patients' vital signs and provide appropriate interventions to patients.								
CO3	Assess the patient as necessary, to monitor the patient regarding treatment.								
CO4	Learn to select strategies for a cure, care & prevention; adopt restorative & rehabilitative measures for maximum possible functional independence of a patient at home, workplace & in the community.								
CO5	Learn to execute effective Physio therapeutic measures with appropriate clinical reasoning to improve general surgical & medical conditions.								

Unit-No.	**Content**	**Contact Hour**	**Learning Outcome**	**KL**
I	Applied anatomy & physiology of cardiopulmonary system Anatomical & physiological differences between adult & pediatric cardiopulmonary system	7	1. The students will have the knowledge in assessing and planning Physiotherapy interventions of various cardiothoracic general, medical and surgical conditions. 2. The student must be able to re-assess the patient as necessary, to monitor the patient in regard to treatment. 3. The students will have the knowledge in monitor patient's vital sign and to provide appropriate interventions to patient.	1,2,3,4
II	Bedside assessment of the patient- Adult & Pediatric Investigations and tests- a. Exercise tolerance testing- Cardiac &pulmonary b. Radiographs c. Pulmonary FunctionTest d. Arterial BloodGases e. ECG f. Haematological & Biochemical tests	10	1. The students will have the knowledge in assessing and planning Physiotherapy interventions of various cardiothoracic general, medical and surgical conditions. 2. The student must be able to re-assess the patient as necessary, to monitor the patient in regard to treatment. 3. The students will have the knowledge in monitor patient's vital sign and to provide appropriate interventions to patient.	1,2,3
III	Physiotherapy techniques to increase lung volume- a. controlled mobilization, positioning, breathing exercises b. Neurophysiological Facilitation of Respiration c. Mechanical aids- Incentive Spirometry,	15	1. The students will have the knowledge in assessing and planning Physiotherapy interventions of various cardiothoracic general, medical and surgical conditions. 2. The student must be able to re-assess the patient as necessary, to monitor the	1,2,3,4,5

	CPAP,IPPB Physiotherapy techniques to decrease the work of breathing- a. Measures to optimize the balance between energy supply and demand, positioning b. Breathing re-education- Breathing control techniques c. Mechanical aids- IPPB,CPAP,BIPAP Physiotherapy techniques to clear secretions- a. Hydration, Humidification & Nebulization b. Mobilization & Breathing exercises c. Postural drainage d. Manual techniques- Percussion, Vibration & Shaking, Rib Springing, ACBT, Autogenic Drainage e. Mechanical Aids-PEP, Flutter,IPPB f. Facilitation of Cough &Huff g. Nasopharyngeal Suctioning Drug Therapy- a. Drugs to prevent and treat inflammation b. Drugs to treat Bronchospasm c. Drugs to treat Breathlessness d. Drugs to help sputum clearance e. Drugs to inhibit coughing f. Drugs to improve ventilation g. Drugs to reduce pulmonary hypertension h. Drug delivery dozes i. Inhalers & Nebulizers		patient in regard to treatment. 3. The students will have the knowledge in monitor patient's vital sign and to provide appropriate interventions to patient.	
IV	Management of wound ulcers- a. Care of ulcer and wounds b. Care of surgical scars- UVR and other electrotherapeutics for healing of wounds c. Prevention of Hyper granulated Scars, Keloids d. Electrotherapeutic measures for relief of pain during mobilization of scar tissues	7	1. The students will have the knowledge in assessing and planning Physiotherapy interventions of various cardiothoracic general, medical and surgical conditions. 2. The student must be able to re-assess the patient as necessary, to monitor the patient in regard to treatment. 3. The students will have the knowledge in monitor patient's vital sign and to provide appropriate interventions to patient.	2,3,4,5,6
V	Physiotherapy in Dermatology- a. Documentation of assessment, treatment and follow up of skin Conditions b. U.V.R in various skin conditions: Vitiligo, Hair loss, Pigmentation, Infected wound ulcers c. Faradic foot bath for Hyper hydrosis d. Massage maneovers for cosmetic purposes of skin- use of specific oil as	11	1. The students will have the knowledge in assessing and planning Physiotherapy interventions of various cardiothoracic general, medical and surgical conditions. 2. The student must be able to re-assess the patient as necessary, to monitor the patient in regard to treatment. 3. The students will have the knowledge in monitor patient's vital sign and to	1,2,3,4,5,6

	medium e. Care of anaesthetic hand &foot Evaluation, planning and management of leprosy- prescription, fitting and training with prosthetic and orthotic devices Neonatal & Pediatric Physiotherapy- a. Chest physiotherapy for children b. The Neo natal unit c. Modifications of Chest Physiotherapy for specific Neonatal disorders d. Emergencies in the Neo natal unit Introduction to ICU- a. ICU Monitoring- Apparatus, Airways & Tubes used in the ICU b. Physiotherapy in the ICU c. Common conditions in the ICU- Tetanus, Head injury, Lung disease, Pulmonary Oedema, Multiple Organ Failure, Neuromuscular Disease, Smoke Inhalation, Poisoning, Aspiration, Near Drowning, ARDS, Shock d. Dealing with an Emergency Situation in the ICU		provide appropriate interventions to patient.	
PRACTICAL	Practical shall be conducted for all the relevant topics discussed in theory in the following forms: 1. Bedside case presentations and case discussions 2. Lab sessions consisting of evaluation and assessment methods on student models, treatment techniques and practice sessions.	60	The objective of the course is that after the specified hours of practicals and demonstrations the student will be able to practice, demonstrate and apply various treatment techniques in cardiorespiratory conditions.	1,2,3,4,5

RELATIONSHIP BETWEEN COURSE OUTCOMES (CO) AND PROGRAMME OUTCOMES

CO PO Mapping		
SN	**Course Outcome (CO)**	**Mapped Programme Outcome**
1	Apply the knowledge in assessing and planning Physiotherapy interventions for various cardiothoracic general, medical, and surgical conditions.	**1,2,3,4,5,6,7,8**
2	Monitor patients' vital signs and provide appropriate interventions to patients.	**1,2,3,4,5,6,7,8**
3	Assess the patient as necessary, to monitor the patient regarding treatment.	**1,2,3,4,5,6,7,8**
4	Learn to select strategies for a cure, care & prevention; adopt restorative & rehabilitative measures for maximum possible functional independence of a patient at home, workplace & in the community.	**1,2,3,4,5,6,7,8**
5	Learn to execute effective Physio therapeutic measures with appropriate clinical reasoning to improve general surgical & medical conditions.	**1,2,3,4,5,6,7,8**

SEMESTER – VI									
Course Title	**DIAGNOSTIC IMAGING FOR PHYSIOTHERAPIST**								
Course code	**23BPTO325R**	**Total Credits:4**	**L**	**T**	**P**	**S**	**R**	**O/F**	**C**
		Total Hours: 60	**4**	**0**	**0**	**0**	**0**	**0**	**4**
Pre-Requisite	ANATOMY, CLINICAL ORTHOPEDICS AND TRAUMATOLOGY	**CO-REQUISITE**	NIL						
Programme	**Bachelor in Physiotherapy**								
Semester	**6th**								
Course Objectives	1.Demonstrate knowledge of specified imaging modalities, relevant anatomy, imaging quality assurance and diagnostic decision making. 2.Describe principles of physics and operation of the imaging equipments 3.Practice professional and ethical responsibilities with high degree of credibility, integrity and social concern								
CO1	Acquire and apply the basic radiographic terminology and the basic principles of radiology and implications of commonly used diagnostic images for better patient's management.								
CO2	Classify the types and specification of imaging equipment and musculoskeletal imaging in use and the information gathered.								
CO3	Choose basic strategies for plain film computed tomography and magnetic resonance images.								
CO4	Acquainted with the knowledge of Safe, effective and efficient operations of imaging equipment and accessories and learn the capabilities and limitations of image recording systems used locally.								
CO5	Explain the cost and utilisation issues associated with diagnostic imaging procedures and imaging reports.								

Unit-No.	**Content**	**Contact Hour**	**Learning Outcome**	**KL**
I	**IMAGE INTERPRETATION :** a. History b. How a Medical Image Helps c. What Imaging Studies Reveal d. Radiography(x-rays) e. Fluoroscopy f. Computed Tomography (CT) g .Magnetic Resonance Imaging (MRI) h. Ultrasound i. Endoscopy. j.Nuclear medicine **RADIOGRAPHY (X-RAY)** a.Production of X-ray tubes b. Equipment components c. Procedures for Radiography d. Benefits versus Risks and Costs e. Indications and contraindications.	**6 hours** **6hours**	Students will have a idea about the different modalities used in radiology and concept of different radiography images. Students will have a better knowledge about X-ray tubes.	1,2, 3
II	**COMPUTED TOMOGRAPHY (CT)** a. What is Computed Tomography? b. Equipment used for Computed Tomography c. Indications and Contra indications d. How it helps in diagnosis e. The Findings in Computed Tomography f. Benefits versus Risks and Costs. **FLUOROSCOPY** a. What is Fluoroscopy? b. Equipment used for fluoroscopy c. Indications and Contra indications d. How it helps in diagnosis	**6 hours**	Students will have a concept of images and differenciation"s Students will have a better	1,2, 3

	e. The Findings in Fluoroscopy f. Benefits versus Risks and Costs.	**6 hours**	knowledge about fluoroscopy	
III	**ENDOSCOPY** a. What is Endoscopy? b. Equipment used for Endoscopy c. Indications and Contra indications d. How it helps in diagnosis e. The Findings in Endoscopy f. Benefits versus Risks and Costs. **MAMMOGRAPHY** a.Production of mammo X-ray tubes b. Equipment components c. Procedures for Mammography d. Benefits versus Risks and Costs e. Indications and contraindications	**6hours** **6hours**	Students will have a better knowledge about endoscopy Students will have a better knowledge about soft tissue radiography (breast)	1,2, 3
IV	**MAGNETIC RESONANCE IMAGING (MRI)** a. What is MRI? b. Equipment used for MRI c. Indications and Contra indications d. How it helps in diagnosis e. The Findings in MRI f. Benefits versus Risks and Costs g. Functional of MRI **ULTRASOUND** a. What is Ultrasound? b. Equipment used for Ultrasound c. Indications and Contra indications d. How it helps in diagnosis e. The Findings in Ultrasound f. Benefits versus Risks and Costs.	6 **hours** 6 **hours**	Students will have a gain knowledge of images Students will have a better knowledge of USG	1,2, 3,4.
V	**NUCLEAR MEDICINE** a.What is Nuclear Medicine? b.PET and SPECT. b. Equipment used for Nuclear Medicine c. Indications and Contra indications d. How it helps in diagnosis. e. Benefits versus Risks and Costs. **SPECIAL PROCEDURE** a.Introduction b. Indication and contra indication c. contrast used in procedure d. Equipments	6 **hours** 6 **hours**	Students will have a better knowledge about Students will have a gain knowledge about contrast media and images	1,2, 3,4

Text Book:

- Christensen's Physics of Diagnostic Radiology (Thomas S. CURRY.III)
- Textbook of Radiology for residents & technicians (S.K.Bhargava)

Reference book:

- CLARK'S Positioning in radiography
- Radiological Procedures (Dr. Bhushan N Lakhkar)

RELATIONSHIP BETWEEN COURSE OUTCOMES (CO) AND PROGRAMME OUTCOMES

CO PO Mapping		
SN	**Course Outcome (CO)**	**Mapped Programme Outcome**
1	Acquire and apply the basic radiographic terminology and the basic principles of radiology and implications of commonly used diagnostic images for better patient's management.	**1,2,3,4,5,6,7,8**
2	Classify the types and specification of imaging equipment and musculoskeletal imaging in use and the information gathered.	**1,2,3,4,5,6,7,8**
3	Choose basic strategies for plain film computed tomography and magnetic resonance images.	**1,2,3,4,5,6,7,8**
4	Acquainted with the knowledge of Safe, effective and efficient operations of imaging equipment and accessories and learn the capabilities and limitations of image recording systems used locally.	**1,2,3,4,5,6,7,8**
5	Explain the cost and utilisation issues associated with diagnostic imaging procedures and imaging reports.	**1,2,3,4,5,6,7,8**

SEMESTER – V									
Course Title	**EXTRACURRICULAR ACTIVITIES/CO-CURRICULAR ACTIVITIES**								
Course code	**23UBEC321/23UBCC321**	**Total Credits:1**	**L**	**T**	**P**	**S**	**R**	**O/F**	**C**
		Total Hours:	**0**	**0**	**0**	**4**	**0**	**0**	**1**
Pre-Requisite	NIL	**Co-Requisite**	NIL						
Programme	**Bachelor in Physiotherapy**								
Semester	**6th**								
Course Objectives	It is to develop the social and soft skills and to promote a holistic development of the learners								
Course Outcome	The students will be engaged in different activities headed under different clubs, namely dance, music, photography, drama, literacy, etc. The students will participate in regular club activities like workshops and competitions as per their interests and hobbies. The students will be trained to represent ADTU in various inter-university, state, and national-level competitions. The students will be given a platform to learn from invited experts in their respective fields. The students will get an exposure of 360-degree learning methodology, considering the overall growth along with the academics.								

Content

AdtU encourages a range of activities outside the regular curriculum intended to meet learner's interest. These activities are aimed to develop the social and soft skills and promote a holistic development of the learners. Keeping in mind the 360-degree learning methodology, the students are engaged in different activities headed under different clubs viz. Dance, Music, Photography, Drama, Literary, etc. The students are encouraged to participate in regular club activities, workshops, and competitions as per their interest and hobbies. The student members of the club are trained to represent AdtU in various inter-university, student, and national-level competitions. Renowned personalities are invited to conduct workshops that benefit the members and students by giving them the platform to learn from experts in their respective fields.

Co-curricular activities in physiotherapy focus on enhancing both academic learning and professional development within the department. These activities often include interdepartmental seminars, workshops, hands-on clinical practice, and case study discussions, where students can engage with faculty and peers. Additionally, departmental events such as physiotherapy awareness campaigns, fitness sessions, and health screenings provide opportunities for students to actively contribute to community wellness while honing their clinical and communication skills. These activities help foster a collaborative learning environment, encourage leadership, and prepare students for the demands of real-world physiotherapy practice.

SEMESTER – VII

Clinical Posting

SEMESTER – VIII									
Course Title	**PT IN OBG AND GENERAL SURGERY**								
Course code	**23BPTO421R**	**Total Credits: 6**	**L**	**T**	**P**	**S**	**R**	**O/F**	**C**
		Total Hours: 120T+30P	**4**	**0**	**4**	**0**	**0**	**0**	**6**
Pre-Requisite	Human anatomy, Human Physiology, General Surgery, Exercise Therapy, Electrotherapy.	**CO-REQUISITE**	NIL						
Programme	**Bachelor in Physiotherapy**								
Semester	**8th**								
Course Objectives	1. To impart the students to the concepts related Clinical obstetrics and gynaecology. Physiotherapy in obstetrics. 2. To deliver the students the concepts related to physiotherapeutic assessment pattern in obstetrics and gynaecology, Physiotherapy in gynaecology, Uro genital dysfunction, Menopause. 3. To introduce the students to the concepts related to the Pelvic inflammatory diseases, physiotherapy in General surgeries.								
CO1	Carry out an assessment and planning of Physiotherapy interventions of various clinical conditions related to Obstetrics and Gynaecology.								
CO2	Acquainted with the knowledge of assessing and planning Physiotherapy interventions of various medical and surgical conditions.								
CO3	Carry out re assessment of the patient as necessary, knowledge of monitoring the patient regarding treatment, and to provide appropriate interventions to patient.								
CO4	Plan out the management of common complications of Pregnancy, Labour, Puerperium & Pre, Peri & Post-Menopausal stage & various aspects of Urogenital Dysfunction.								
CO5	Acquainted with the knowledge of acquiring the skills of the clinical examination of Pelvic inflammatory diseases, PCOD and Pelvic Floor.								

Unit-No.	**Content**	**Contact Hour**	**Learning Outcome**	**KL**
I	Clinical obstetrics and gynecology: a. Brief review of anatomy and physiology of female reproductive organ b. Physiology of puberty and menstruation, abnormalities and common problems of menstruation c. Pregnancy- fertilization, development of the fetus, normal gestation, multiple gestations, common complications during pregnancy like PIH, Eclampsia, diabetes, hepatitis, German MEASLES, TORCH Physiotherapy in obstetrics and gynaecology: a. Complications of pregnancy and relieving pregnancy related discomfort with physiotherapy, b. Physiotherapy pre & post CS c. Role of PT in bladder and bowel dysfunction, d. Role of physiotherapy in urogenital dysfunction	**15** **20**	1. The subject is designed to provide knowledge in assessing and planning Physiotherapy interventions of various clinical conditions of OBG. 2. The subject is designed to provide knowledge in assessing and planning Physiotherapy interventions of various clinical conditions of medical and surgical conditions. 3. The student must be able to re assess the patient as necessary, to monitor the patient in regard to treatment, and to provide appropriate interventions to patient.	1,2, 3,4
II	Neoplasm of female reproductive system Polycystic ovarian diseases Uro genital dysfunction:	10	1. The subject is designed to provide knowledge in assessing and planning Physiotherapy interventions of various clinical conditions of OBG.	1,2, 3

	a. Uterine prolapsed- classification and management, b. Cystocoele, rectocoele, enterocoele.	10	2. The subject is designed to provide knowledge in assessing and planning Physiotherapy interventions of various clinical conditions of medical and surgical conditions. 3. The student must be able to re assess the patient as necessary, to monitor the patient in regard to treatment, and to provide appropriate interventions to patient.	
III	Physiotherapeutic assessment pattern in obstetrics and gynecology (subjective and objective) Menopause: a) Pre and post menopause physiology b) Diagnosis and treatment of musculoskeletal pain and dysfunction postmenopause	**8** **10**	1. The subject is designed to provide knowledge in assessing and planning Physiotherapy interventions of various clinical conditions of OBG. 2. The subject is designed to provide knowledge in assessing and planning Physiotherapy interventions of various clinical conditions of medical and surgical conditions. 3. The student must be able to re assess the patient as necessary, to monitor the patient in regard to treatment, and to provide appropriate interventions to patient.	1,2, 3,4, 5
IV	Labor: a. Normal events of 1st ,2nd and 3rd stages of labor b. Complications during labor and management Normal delivery, physiotherapy management in antenatal period d. Post natal- puerperuim, lactation, physiotherapy management in post natal period e. Contraception c. Family planning General surgeries: a. Introduction, principles of physiotherapy for surgical patients, surgical procedures b. Abdominal surgery, c. Adrenalectomy, d. Breast surgery e. Colonic and rectal surgery- colostomy, ileostomy f. Genitor urinary surgery- nephrectomy, prostatectomy, cystectomy	**17** **10**	1. The subject is designed to provide knowledge in assessing and planning Physiotherapy interventions of various clinical conditions of OBG. 2. The subject is designed to provide knowledge in assessing and planning Physiotherapy interventions of various clinical conditions of medical and surgical conditions. 3. The student must be able to re assess the patient as necessary, to monitor the patient in regard to treatment, and to provide appropriate interventions to patient.	2,3, 4,5, 6
V	Pelvic inflammatory diseases: a. Introduction, clinical features b. Physiotherapy in PID Hernia- femoral, inguinal, umbilical, incisional Thyroidectomy Pt management in general surgeries**.**	**10**	1. The subject is designed to provide knowledge in assessing and planning Physiotherapy interventions of various clinical conditions of OBG. 2. The subject is designed to provide knowledge in assessing and planning Physiotherapy interventions of various clinical conditions of medical and	1,2, 3,4, 5,6

		10	surgical conditions. 3. The student must be able to re assess the patient as necessary, to monitor the patient in regard to treatment, and to provide appropriate interventions to patient.	
PRACTICAL	Practical shall be conducted for all the relevant topics discussed in theory in the following forms: 1. Bedside case presentations and case discussions 2. Lab sessions consisting of evaluation and assessment methods on student models, treatment techniques and practice sessions.	60	The objective of the course is that after the specified hours of practicals and demonstrations the student will be able to practice, demonstrate and apply various treatment techniques in OBG and general surgery conditions.	1,2, 3,4, 5

TEXT BOOKS:

1. General medical and surgical conditions for physiotherapy (cash and cash)

REFERENCE BOOKS:

1. Physiotherapy in obstetrics and gynecology (polden jill mental)

RELATIONSHIP BETWEEN COURSE OUTCOMES (CO) AND PROGRAMME OUTCOMES

CO PO Mapping		
SN	**Course Outcome (CO)**	**Mapped Programme Outcome**
1	Carry out an assessment and planning of Physiotherapy interventions of various clinical conditions related to Obstetrics and Gynaecology.	**1,2,3,4,5,6,7,8**
2	Acquainted with the knowledge of assessing and planning Physiotherapy interventions of various medical and surgical conditions.	**1,2,3,4,5,6,7,8**
3	Carry out re assessment of the patient as necessary, knowledge of monitoring the patient regarding treatment, and to provide appropriate interventions to patient.	**1,2,3,4,5,6,7,8**
4	Plan out the management of common complications of Pregnancy, Labour, Puerperium & Pre, Peri & Post-Menopausal stage & various aspects of Urogenital Dysfunction.	**1,2,3,4,5,6,7,8**
5	Acquainted with the knowledge of acquiring the skills of the clinical examination of Pelvic inflammatory diseases, PCOD and Pelvic Floor.	**1,2,3,4,5,6,7,8**

SEMESTER – VIII									
Course Title	**COMMUNITY BASED REHABILITATION**								
Course code	**23BPTO422R**	**Total Credits: 3**	**L**	**T**	**P**	**S**	**R**	**O/F**	**C**
		Total Hours: 75T+60P	**4**	**0**	**4**	**0**	**0**	**0**	**6**
Pre-Requisite	Human Anatomy, Human Physiology, Clinical Orthopaedics and traumatology, Clinical neurology and neurosurgery, Community medicine.	**Co-Requisite**	PT in orthopaedic, PT in Neurological conditions, PT in Cardiothoracic conditions and general conditions, PT in OBG						
Programme	**Bachelor in Physiotherapy**								
Semester	**8th**								
Course Objectives	1.To introduce the students to the concepts related Disability Evaluation, National District Level Rehabilitation Programme, Vocational training in rehabilitation. 2.To impart the students to the concepts related to Geriatric problems. 3.To make the understand the students to the concepts related to Industrial health.								
CO1	Evaluation of disability and planning for prevention and rehabilitation.								
CO2	Understand the prevalence and incidence of various conditions responsible for increasing morbidity in the specific community – role of PT in improving morbidity, expected clinical and functional recovery, reasons for non-compliance in specific community environment solution for the same.								
CO3	Apply the skills gained in rehabilitating and restoring functions.								
CO4	Identify with clinical reasoning the prevailing contextual (e.g. environmental and psycho-social cultural factors, causing high risk responsible for various dysfunctions and morbidity related to sedentary life style and specific community like women, children, aged as well as industrial workers and describe planning strategies of interventional policies to combat such problems.								
CO5	Conduct as small project {cross sectional study /survey} to access to the prevalence of specific physical health problem and /or morbidity in specific community – which may be based at the institutional level or in field.								

Unit-No.	**Content**	**Contact Hour**	**Learning Outcome**	**KL**
I	1.Rehabilitation: Definition, Types. 2.Introduction to Community Based Rehabilitation: Definition, Historical review, Concept of CBR, Need for CBR, Difference between Institution based and Community based Rehabilitation, Objectives of CBR, Scope of CBR, Models of CBR. Disability Evaluation: Introduction, What, Why and How to evaluate, Quantitative versus Qualitative data, Uses of evaluation findings.	5 5	The student will be able to discuss and explain about disability.	1,2,3, 4
II	Principles of Community based Rehabilitation. W.H.O.`s policies-about rural health care concept of primary /tertiary health centers-district hospitals etc. Members of CBR team .Role of P.T.-Principles of a team work of Medical person/P.T./O.T. audiologist/speech therapist /P.&O./vocational guide in C.B.R. of physically handicapped person. Concept of multipurpose health worker. Role of family members in the rehabilitation of a physically handicapped. Rehabilitation acts, Ethical issues in rehabilitation • National District Level Rehabilitation Programme: Primary rehabilitation unit, Regional training center, District rehabilitation center, Primary Health center, Village rehabilitation worker, Anganwadi worker. • Extension services and mobile units: Introduction,	8 5 Hrs	The student will be able to understand and apply the approach of camps and extension services.	1,2,3

	Need, Camp approach.			
III	Vocational training in rehabilitation: Introduction, Need, Vocational evaluation, Vocational rehabilitation services. 1. Disability: Causes of disability, Types of disability, Brief review of term Impairment/disability/handicap and ICIDH, ICF Classification, Disability in developed countries, Disability in developing countries. Disability Surveys: Demography. Screening: Early detection of disabilities and developmental disorders, Prevention of disabilities- Types and levels. 2.Role of voluntary Organizations in CBR: Charitable Organizations, Voluntary health agencies – National level and International NGO's . National and International Health Organizations: WHO, UNICEF, UNDP, UNFPA, FAO, ILO, World bank, USAID, SIDA, DANIDA, Rockfeller, Ford foundation, CARE, RED CROSS.	6 Hrs 10	The student will be able to deliver the vocational training to the disabled and also do a proper evaluation.	1,2,3, 4,5
IV	Role of Physiotherapy in CBR: Screening for disabilities, Prescribing exercise Programme, Prescribing and devising low cost locally available assistive aids. Orthotics and prosthetics for upper limb, lower limb and spine. Modifications physical and architectural barriers for disabled, Disability prevention, Strategies to improve ADL & IADL. Geriatrics- Physiology of Aging /degenerative changes-Musculoskeletal /Neuromotor /cardio – respiratory-/Metabolic, Endocrine, Cognitive, Immune systems. Role of Physio Therapy in Hospital based care, Half-way homes, Residential homes, Meals on wheels etc. Home for the aged, Institution based Geriatric Rehabilitation. Few conditions: Alzheimer's disease, Dementia, Parkinson's Disease, Incontinence, Iatrogenic drug reactions, etc. Ethics of Geriatric Rehabilitation, Woman and child care: Introduction .	10 8 Hrs	The student will be able to do a proper assessment of geriatric population and also plan a management for the same.	2,3,4, 5,6
V	Industrial health: I. Ability Management -Job analysis: - Job description, Job demand Analysis, Task Analysis, Ergonomic Evaluation including Anthropometric data collection, Injury Prevention, Employee Fitness Programme, Disability Management:- Acute care, Concept of Functional Capacity Assessment, Work Conditioning, Work Hardening. II. Environmental stress in the industrial area– A. Physical agents e.g. heat / cold, light, noise, vibration, UV radiation, ionizing radiation B. Chemical agents-inhalation, local action and ingestion C. Mechanical hazards-overuse/fatigue injuries due to ergonomic alternation and Mechanical stresses. **V.** Work related musculoskeletal disorder. Rehabilitation Programmes for various neuro-musculoskeletal and cardiothoracic disabilities-	8 Hrs	The student will be able to do a job analysis, job description and ergonomic evaluation of people in different working areas.	4,5,6

	a)Amputation b)Stroke c)Brain injury d) Cerebral palsy e)Poliomyelitis f)Peripheral nerve injuries g)Vascular and haematological condition h) Cardio respiratory dysfunction i)Chronic pain j) Burns k)Arthritis l)Obesity m) spinal cord injury.	10		
Practical:	● Geriatrics cases-assessment/treatment/rehabilitation. ● Assessment and management-Work related musculoskeletal disorders-UL/LL/SPINE. ● Outreach clinic/camp ● Rehabilitation of – stroke/spinal cord injury /amputation/ cerebral palsy/Peripheral nerve injuries/cardiovascular dysfunction, Burn. (assessment/management)	30 Hrs 30	The student will be able to assess, treat and rehabilitate various conditions in community setting.	1,2,3, 4,5,6

TEXT BOOKS:

1. Physical rehabilitation assessment and treatment- 4th ed. Susan B. O'Sullivan.
2. Social and preventive medicine-K. Park
3. CBR- S. Sundar

REFERENCE BOOKS:

1. Neurological rehabilitation – Darcy Umphred.
2. Text book of medicine-Davidson

RELATIONSHIP BETWEEN COURSE OUTCOMES (CO) AND PROGRAMME OUTCOMES

CO PO Mapping		
SN	**Course Outcome (CO)**	**Mapped Programme Outcome**
1	Evaluation of disability and planning for prevention and rehabilitation.	**1,2,3,4,5,7,8**
2	Understand the prevalence and incidence of various conditions responsible for increasing morbidity in the specific community – role of PT in improving morbidity, expected clinical and functional recovery, reasons for non-compliance in specific community environment solution for the same.	**1,2,3,4,5,7,8**
3	Apply the skills gained in rehabilitating and restoring functions.	**1,2,3,4,5,6,7,8**
4	Identify with clinical reasoning the prevailing contextual (e.g. environmental and psycho-social cultural factors, causing high risk responsible for various dysfunctions and morbidity related to sedentary life style and specific community like women, children, aged as well as industrial workers and describe planning strategies of interventional policies to combat such problems.	**1,2,3,4,5,7,8**
5	Conduct as small project {cross sectional study /survey} to access to the prevalence of specific physical health problem and /or morbidity in specific community – which may be based at the institutional level or in field.	**1,2,3,4,5,7,8**

SEMESTER – VIII									
Course Title	**PT IN CARDIOTHORACIC CONDITIONS AND GENERAL CONDITIONS**								
Course code	**23BPTO423R**	**Total Credits: 4**	**L**	**T**	**P**	**S**	**R**	**O/F**	**C**
		Total Hours: 30T+60P	**2**	**0**	**4**	**0**	**0**	**0**	**4**
Pre-Requisite	Human Anatomy, Human Physiology, Biomechanics of human motion, Exercise Therapy.	**CO-REQUISITE**	NIL						
Programme	**Bachelor in Physiotherapy**								
Semester	**8th**								
Course Objectives	1. To introduce the students to the concepts related to the knowledge in assessing and planning Physiotherapy interventions of various cardiothoracic conditions. 2. To understand the concepts related to the knowledge in assessing and planning Physiotherapy interventions of various general, medical and surgical conditions. 3. To assess the patient as necessary, to monitor the patient in regard to treatment, to monitor patient's vital sign and to provide appropriate interventions to patient.								
CO1	Apply the knowledge in assessing and planning Physiotherapy interventions for various cardiothoracic general, medical, and surgical conditions.								
CO2	Monitor patients' vital signs and provide appropriate interventions to patients.								
CO3	Assess the patient as necessary, to monitor the patient regarding treatment.								
CO4	Learn to select strategies for a cure, care & prevention; adopt restorative & rehabilitative measures for maximum possible functional independence of a patient at home, workplace & in the community.								
CO5	Learn to execute effective Physio therapeutic measures with appropriate clinical reasoning to improve general surgical & medical conditions.								

Unit-No.	**Content**	**Contact Hour**	**Learning Outcome**	**KL**
I	**Physiotherapy in Obstructive lung conditions** Physiotherapy in Restrictive lung conditions Management of Breathlessness Pulmonary Rehabilitation Respiratory failure- Oxygen Therapy & Mechanical Ventilation	7	The students will have the knowledge in assessing and planning Physiotherapy interventions of various cardiothoracic general, medical and surgical conditions.	1,2,3,4
II	**Physiotherapy following lung surgeries** Physiotherapy Management following cardiac surgeries Cardiac Rehabilitation Abdominal Surgeries- Management of Pulmonary Restorative Dysfunction following Surgical procedures on Abdomen & Thorax	10	The student must be able to re-assess the patient as necessary, to monitor the patient in regard to treatment.	1,2,3
III	**Burns Management-** **a.** Role of Physiotherapy in the management of burns, post grafted cases Mobilization &Musculo- skeletal restorative exercises following burns Physiotherapy management following PVD Management of Amputations following Diabetes, PVD- Prosthesis in amputation of lower limbs following ulcers and gangrene	15	The students will have the knowledge in monitor patient's vital sign and to provide appropriate interventions to patient.	1,2,3,4, 5

	Physiotherapy interventions in the management of medical, surgical and Radiation Oncology Cases			
IV	**Treatment Response to exercise and** Implications of Physiotherapy in the following disease conditions- a. Hypertension b. Diabetes c. Renalfailure d. Obesity	7	The students will have the knowledge in monitor patient's vital sign and to provide appropriate interventions to patient.	2,3,4,5, 6
V	**Applied Yoga in Cardio- respiratory conditions**	11	The students will have the knowledge in assessing and planning Physiotherapy interventions of various cardiothoracic general, medical and surgical conditions.	1,2,3,4, 5,6
PRACTICAL	Practical shall be conducted for all the relevant topics discussed in theory in the following forms: 1. Bedside case presentations and case discussions 2. Lab sessions consisting of evaluation and assessment methods on student models, treatment techniques and practice sessions.	60	The objective of the course is that after the specified hours of practicals and demonstrations the student will be able to practice, demonstrate and apply various treatment techniques in cardiorerspiratory conditions.	1,2,3,4, 5

TEXT BOOKS:

1.Tidy'sPhysiotherapy
2.Cash's textbook of chest, heart, vascular disorder for Physiotherapist.
3. Physical rehabilitation of assessment and treatment – O'sullivan Schmitz
4.Essentials of cardiopulmonary Physical therapy by Hillegass and Sadowsky.

REFERENCE BOOKS:

1. Chest physiotherapy and intensive care unit byMackenzi.
2.The Brompton guide to Chest Physiotherapy DUGasket

RELATIONSHIP BETWEEN COURSE OUTCOMES (CO) AND PROGRAMME OUTCOMES

CO PO Mapping		
SN	**Course Outcome (CO)**	**Mapped Programme Outcome**
1	Apply the knowledge in assessing and planning Physiotherapy interventions for various cardiothoracic general, medical, and surgical conditions.	**1,2,3,4,5,6,7,8**
2	Monitor patients' vital signs and provide appropriate interventions to patients.	**1,2,3,4,5,6,7,8**
3	Assess the patient as necessary, to monitor the patient regarding treatment.	**1,2,3,4,5,6,7,8**
4	Learn to select strategies for a cure, care & prevention; adopt restorative & rehabilitative measures for maximum possible functional independence of a patient at home, workplace & in the community.	**1,2,3,4,5,6,7,8**
5	Learn to execute effective Physio therapeutic measures with appropriate clinical reasoning to improve general surgical & medical conditions.	**1,2,3,4,5,6,7,8**

SEMESTER – VIII										
Course Title	**ALLIED THERAPEUTICS AND SPORTS PHYSIOTHERAPY**									
Course code	**23BPTO424R**	**Total Credits: 4**	**L**	**T**	**P**	**S**	**R**	**O/F**	**C**
		Total Hours: 63T	**4**	**0**	**0**	**0**	**0**	**0**	**4**
Pre-Requisite	Human anatomy, Human Physiology,	**CO-REQUISITE**	Clinical Orthopaedic, Clinical Neurology						
Programme	**Bachelor in Physiotherapy**								
Semester	**8th**								
Course Objectives	1. To introduce the students to the concepts related to exercise physiology, Concept of health and Physical fitness, Sports Medicine, Sports, and Sports Injuries. 2. To impart the students concept related to assessment of co-ordination, speed, reaction time, agility, balance and of evaluation in sports injury, Principles of sports injury rehabilitation, Pharmacology in sports. 3. To introduce the students the concept of Acupuncture and Naturotherapy, Magneto therapy and Yoga asana.									
CO1	Acquainted with the basics exercise physiology, Physical fitness, and to assess co-ordination,speed, reaction time, agility, balance, basic principles of physical education and application in health, physical fitness.									
CO2	Carry out the basic principles of exercise prescription and discussion about the basic Sports training.									
CO3	Describe about body dimensions, measurement techniques, training of physical performance and skills and also mechanism of sports injuries and their management in physiotherapy is also studied.									
CO4	Discuss the basic of the Diet and nutrition: basic principles, stress and its management, magnetotherapy.									
CO5	Describe about the basic of acupuncture and also it will enables them to understand about the basic of Naturotherapy, alsoYoga asana									

Unit-No.	**Content**	**Contact Hour**	**Learning Outcome**	**KL**
I	Introduction to exercise physiology. Concept of health and Physical fitness. Assessment of co-ordination, speed, reaction time, agility, balance. Sports Medicine: Definition: Sports injury,sports medicine, sports physiotherapy Sports and Sports Injuries: a. Introduction. b. Frequency and site of injury. c. Etiological Factors. d. Investigation in sports injury. e. Diagnosis and prognosis	**10** **9**	This course enables the students to understand about the basic exercise physiology, physical fitness, and to assess co-ordination, speed, reaction time, agility, balance principles of physical education and application in health, physical fitness. Enables the students to understand about the basic Sports training. Enables the students to understand about mechanism of sports injuries and their management in physiotherapy is also studied.	1,2,3, 4
II	Principles exercise prescription. Evaluation in sports injury, Pre participation evaluation in sports Principles of sports injury rehabilitation Pharmacology in sports.	**3** **10**	This course enables the students to understand about the basic principles of exercise prescription. Enables the students to understand about the basic Sports training. Enables the students to understand about mechanism of sports injuries and their management in physiotherapy is also studied.	1,2,3
III	Body dimensions and measurement techniques. Training of physical performance and skills. Fatigue.	**6** **3**	This course enables the students to understand about Body dimensions and measurement techniques. Training of physical performance and skills	1,2,3, 4,5

			This course enables the students to understand about Fatigue.	
IV	Diet and nutrition: basic principles. Stress and its management. Magneto therapy.	**5** **5**	Enables the students to understand about the Diet and nutrition: basic principles. Stress and its management. This course enables the students to understand about the basic of Magnetotherapy.[	2,3,4, 5,6
V	Acupuncture. Naturotherapy. Yoga asana.	**8** **5**	Enables the student to understand the basic of Acupuncture and also it will enables them to understand about the basic of Naturotherapy. This course enables the students to understand about the basic of Yoga asana.	1,2,3, 4,5,6

TEXT BOOKS:

1. Text book of sports medicine – by Peter Brukner and Karim Khan
2. Practical exercise therapy by Margaret Hollis , 4th edition

REFERENCE BOOKS:

1. Therapeutic exercise by Kishner & Colby, the edition; Jaypee Publication.
2. Alternative Therapies by Swati Bhagat

RELATIONSHIP BETWEEN COURSE OUTCOMES (CO) AND PROGRAMME OUTCOMES

CO PO Mapping		
SN	**Course Outcome (CO)**	**Mapped Programme Outcome**
1	Acquainted with the basic principles of physical education and application in health, physical fitness.	**1,3,6,7,8**
2	Carry out the discussion about the basic Sports training.	**2,4,7**
3	Describe about mechanism of sports injuries and their management in physiotherapy is also studied.	**2,3,6,7,8**
4	Discuss the basic of Magnetotherapy.	**4,8**
5	Describe about the basic of Yoga asana	**4,5**

Assam down town University

Curriculum and Syllabus

Master of Physiotherapy

OUTCOME BASED EDUCATION FRAMEWORK

CHOICE BASED CREDIT SYSTEM

Version: 2.1

FACULTY OF PHYSIOTHERAPY AND REHABILITATION

July,2023

PREAMBLE

Assam down town University is a premier higher educational institution which offers Bachelor, Master, and Ph.D. degree programmes across various faculties. These programmes, collectively embodies the vision and mission of the university. In keeping with the vision of evolutionary changes taking place in the educational landscape of the country, the university has restructured the course curriculum as per the guidelines of National Education Policy 2020. This document contains outline of teaching and learning framework and complete detailing of the courses. This document is a guidebook for the students to choose desired courses for completing the programme and to be eligible for the degree. This volume also includes the prescribed literature, study materials, texts, and reference books under different courses as guidance for the students to follow.

Recommended by the Board of Studies (BOS) meeting of the Faculty of Science held on dated 18/07/2023 and approved by the Emergent Academic Council (AC) meeting held on dated 28/07/2023.

Chairperson, Board of Studies

Member Secretary, Academic Council

Vision

To become a Globally Recognized University from North Eastern Region of India, dedicated to the Holistic Development of Students and Making Society Better

Mission

1. Creation of curricula that address the local, regional, national, and international needs of graduates, providing them with diverse and well-rounded education.
2. Build a diverse student body from various socio-economic backgrounds, provide exceptional value-based education, and foster holistic personal development, strong academic careers, and confidence.
3. Achieve high placement success by offering students skill-based, innovative education and strong industry connections.
4. Become the premier destination of young people, desirous of becoming future professional leaders through multidisciplinary learning and serving society better.
5. Create a highly inspiring intellectual environment for exceptional learners, empowering them to aspire to join internationally acclaimed institutions and contribute to global efforts in addressing critical issues, such as sustainable development, Climate mitigation and fostering a conflict-free global society.
6. To be renowned for creating new knowledge through high quality interdisciplinary research for betterment of society.
7. Become a key hub for the growth and excellence of AdtU's stakeholders including educators, researchers and innovators.
8. Adapt to the evolving needs and changing realities of our students and community by incorporating national and global perspectives, while ensuring our actions are in harmony with our foundational values and objectives of serving the community.

Programme Details

Programme Overview

The Master of Physiotherapy course is a 2-year full-time programme with 4 semesters leading to the degree that equips the student with analytical, evidence-based and Hands on learning skills. The programme is generic in nature and has a component of additional learning of one area leading to an elective in that area. A student of MPT is likely to impart research basis to validate techniques during professional practice. The duration of the certified study for Master in Physiotherapy degree course under Faculty of physiotherapy shall extend over a period of four academic semesters (two years).

I. Specific Features of the Curriculum

Professional Excellence: Exhibit expertise, advanced clinical proficiency, and empathetic patient care attitude across diverse subfields including musculoskeletal, neurological. Cardiorespiratory, and paediatric domains for better healthcare outcomes

Practice in Research: Able to develop new rehabilitation technology, methodology or protocol by doing research in physiotherapy

International Competency: Demonstrate global professional competencies by attaining interdisciplinary knowledge through specialized certifications offered on international learning platforms.

II. Eligibility Criteria:

Candidates admitted into the Master of Physiotherapy course should have passed the BPT degree examination of this University or an examination of any other University (on campus full time course) accepted by the authorities of this University as equivalent thereto. Candidates who have passed BPT Examination other than Assam downtown University, Guwahati shall obtain migration certificate from the parent university.

III. Programme Educational Objectives (PEOs):

PEO1: AdtU Physiotherapy Postgraduates will be prepared with specialized training in any one of the physiotherapeutic specializations: musculoskeletal and sports, neurological, cardiorespiratory and paediatrics for successful careers in one or more of the sectors: hospitals, rehabilitation centres, academic and research institutions, sports clubs, NGOs, and/ or in government.

PEO2: Physiotherapy Postgraduates will be academically prepared to become specialized and highly skilled physiotherapy professionals for contributing effectively to the growth of the healthcare profession and in the service of humankind.

PEO3: Postgraduates will engage in professional practices and activities to enhance their manual skills and stature, can provide innovative healthcare solutions, establish physiotherapy clinics or rehabilitation centres, and be successful in higher education in healthcare or hospital management if pursued.

IV. Programme Specific Outcomes (PSOs):

PSO1: Professional Excellence: Exhibit expertise, advanced clinical proficiency, and empathetic patient care attitude across diverse subfields including musculoskeletal, neurological. Cardiorespiratory, and paediatric domains for better healthcare outcomes

PSO2: Practice in Research: Able to develop new rehabilitation technology, methodology or protocol by doing research in physiotherapy.

PSO3: International Competency: Demonstrate global professional competencies by attaining interdisciplinary knowledge through specialized certifications offered on international learning platforms.

V. Programme outcome (POs):

PO1: Physiotherapeutic Knowledge: Apply comprehensive physiotherapeutic understanding and specialized knowledge for analysing the functional aspects of the human body.

PO2: Problem Analysis and Modern Approaches: Assess, analyse and detect complex human dysfunction using suitable diagnostic techniques, and design respective physiotherapeutic solutions applying modern treatment approaches concerning healthcare policies and practices.

PO3: Circumstantial Rehabilitation: Implement customized practices and management strategies in varying circumstantial conditions for solving physiotherapeutic problems and better rehabilitative outcomes of clinical practice in the community.

PO4: Research-In-Practice: Exhibit proficiency in utilizing high-quality evidence-based strategies that lead to excellence in professional practice.

PO5: Communication: Communicate effectively with patients/ diverse healthcare teams to comprehend health issues and be able to write effective reports.

PO6: Professional Ethics: Demonstrate commitment to ethical values adhering to the highest standard of integrity and accountability in the profession.

PO7: Teamwork and Leadership: Function effectively as an individual or a member/ leader in diverse healthcare settings and teams.

PO8: Lifelong Learning: Ability to work independently and consistently acquire expertise in the continually developing domain of physiotherapeutic treatment methods and technology, while remaining adaptable to the dynamic changes in healthcare within society**.**

VI. Total Credits to be Earned: 87

VII. Career Prospects:

Physiotherapy is delivered in a variety of settings which allow it to achieve its purpose. Prevention, health promotion, treatment/intervention, rehabilitation and rehabilitation take place in multiple settings that may include, but are not confined to, the following:

1. Community based rehabilitation programmes.
2. Community settings including primary health care centres, individual homes, and field settings.
3. Education and research centres.
4. Fitness clubs, health clubs, gymnasia and spas.
5. Hospices.
6. Hospitals.
7. Nursing homes.
8. Occupational health centres.
9. Out-patient clinics.
10. Physiotherapist private offices, practices, clinics.
11. Prisons.

EVALUATION METHODS

The student performance shall be evaluated through In-semester (Sessional) and semester-end examinations. A weightage of 40% or as prescribed by the programme shall be added to the score of the end-semester examination.

A. INTERNAL ASSESSMENT:

The teacher who offers the course shall be responsible for internal assessment by conducting in-semester (sessional) examination and evaluating the performance of the students pursuing that course. The components for internal assessment are illustrated in the table given below.

SN	Components/ Examinations	Marks Allotted
1.	In-Seem Exam – I (ISE-I) (Written Examination)*	30
2.	In-Seem Exam – II (ISE-II) (Written Examination)*	30
3.	Assignment	10
4.	Presentation (SP)	10
5.	Quiz	5
6.	Class Performance based score*	5

are compulsory

Note: *Total Internal assessment should be out of 40*

INSTRUCTION

1. If a student fails to appear in the any of the component without any valid reason he/she shall be marked zero in that component. However, the course teacher at his discretion may arrange for the missed test on an alternate date for the absentee students after determining ground with genuine/valid reasons for the absent.
2. The report of evaluation of an activity towards the in-semester (sessional) component of a course shall be duly notified by the concerned course teacher within a week of completion.
3. The programme coordinators should upload the in-semester marks to the ERP and forward acknowledgement of all the courses of the programme to the Controller of Examinations before the start of the End-semester examination.

B. SEMESTER END EXAMINATION:

Time table for end semester examination is published at least 25 days prior to the start of Examination.

I. Pre-Examination:

Eligibility Criteria for a student to appear in University Examinations:

The student shall only be allowed to appear in a University Examination, if:

i) He/ She is a registered student of the University;
ii) He/ She is of good conduct and character;
iii) He/ She has completed the prescribed Programme of study with minimum percentage of attendance as laid down in the Regulations of the Programme concerned.

Under special cases, a student may be allowed to appear for an examination without being registered in the University but the result of the said student will be kept on hold till the registration of the concerned student is completed.

II. Admit Card:

Admit card for the examination may be downloaded through ERP where the system will generate a Unique ID Cards through online.

The University shall have the right to cancel admission for examination of any candidate on valid grounds.

III. Pattern of Question Papers:

The question paper shall follow the principles of Bloom's Taxonomy.

Table

S. N.	Level	Questions /verbs for test
1	Remember	List, Define, tell, describe, recite, recall, identify, show who, when, where, etc.
2	Understand	Describe, explain, contrast, summarize, differentiate, discuss, etc.
3	Apply	Predict, apply, solve, illustrate, determine, examine, modify
4	Analyse	Classify, outline, categorize, analyse, diagrams, illustrate, infer, etc.
5	Evaluate	Assess, summarize, choose, evaluate, recommend, justify, compare etc.
6	Create	Design, Formulate, Modify, Develop, integrate, etc.

Note: No course is to be evaluated on basis of **all 6 knowledge levels.**

The format of the question paper across all the programme follows a unique pattern and the total marks is 60

Table 1: Question paper pattern for End semester examination

Sl no	Question pattern	Total marks
1	MCQs (10 Questions)	10
2	2 Marks questions (10 Questions)	20
3	4 Marks questions (5 Questions)	20
4	10 Marks questions (1 Question)	10

IV. Examination Duration:

Each paper of 60 marks shall ordinarily be of two hours duration.

V. Practical Examinations, Viva-Voce etc.:

i) Practical examination shall be conducted in the presence of one external expert and one or more internal examiners.

ii) Viva-Voce, Oral examinations of the Project report, Dissertation etc. shall be undertaken by a Board of Examiners constituted by the respective Dean of Program with the advice of Supervisor(s).

VI. Procedure of Expulsion:

If any candidate is found to be using any unfair-means during the examination, the invigilator may cease his/her answer sheet and report it directly to the Officer-in-Charge. The Office-in-Charge of the centre may take appropriate decisions as per the rules and procedure of the examination. The Officer-in-Charge may allow the students to write the exam with new answer sheet or may expel the student from appearing the paper depending on the nature of unfair-means. In case of Computer based test, the students may be directed to write an apology letter and sign in the prescribe expulsion form. The student may not be allowed to write that examination.

VII. Instruction to the Students:

(i) The students shall not bring to the Examination Hall, any electronic gadget used as a means of communication or record except electronic calculator, if required.

(ii) The students shall not receive any book or printed or hand written or photo copy (Xerox) or blank-paper from any other person while he/she is in the examination-room or in laboratory or in any other place to which he/she is allowed to have access during course of examination.

(iii) The students shall not communicate with any other candidate in the examination room or with any other person in and outside the examination-room.

(iv) The students shall not see, read or copy anything written by any other candidate, nor shall he/she knowingly or negligently permit any other candidate to see, read or copy anything written by him/her or conveyed by him/her.

(v) The students shall not write anything on the Question Paper or in other paper or materials during the examination, or pass any kind of paper to any other candidate in the examination-room, or to any person outside the room.

(vi) The students shall not disclose his/her identity to the examiner by writing his/her name or putting any sign / symbol in any part of his answer-script.

(vii) The students shall not use any abusive language or write any objectionable remark or make any appeal to examiner by writing in any part of his answer-script.

(viii) The students shall not detach any page from the answer-script or insert any authorized or unauthorized loose sheet into it. He /she shall also not insert any other answer-script / loose sheet by removing the pins of the origin answer-scripts and re-fixing it.

(ix) The students shall not resort to any disorderly conduct inside the examination-room or misbehave with the invigilator or any other examination official.

VIII. Provision for an Amanuensis (writer):

(i) A candidate may be provided with an Amanuensis (writer) to write down on dictation on his / her behalf on ground of his / her physical disability to write down by himself / herself due to accident or any other reason. The amanuensis may be provided till he / she recovers from the physical disability. The physical disability to write down by himself / herself must be supported by Medical Certificate from a competent Medical Officer.

(ii) The qualifications of the amanuensis so provided must not be equal or higher than that of the candidate. This is also to be supported by Certificate from the Faculty of Study where the Amanuensis is provided.

(iii) Such candidates are to be accommodated in a separate room under the supervision of an invigilator so that the fellow candidates are not disturbed in the process.

C. Credit Point:

It is the product of grade point and number of credits for a course, thus, CP = GP x CR

i. Credit:

A unit by which the course work is measured. It determines the number of hours of instructions required per week. 'Credit' refers to the weightage given to a course, usually in terms of the number of instructional hours per week assigned to it. Credits assigned for a single course always pay attention to how many hours it would take for an average learner to complete a single course successfully.

ii. Grade Point:

Grade Point is a numerical weight allotted to each Grade Letter on a 10-point scale.

iii. Letter Grade:

Letter Grade is an index of the performance of students in a said paper of a particular course. Grades are denoted by letters O, A+, A, B+, B, C, P, F and Abs. Student obtaining Grade F / Grade Abs shall be considered failed/ absent and, will be required to appear in the subsequent ESE. The UGC recommends a 10-point grading system with the following (Table: 1) Letter Grades:

(i) A Letter Grade shall signify the level of qualitative/quantitative academic achievement of a student in a Course, while the Grade Point shall indicate the numerical weight of the Letter Grade on a 10-point scale.

(ii) There shall be 08 (eight) Letter Grades bearing specific Grade Points as listed in Table 1, where the Letter Grades 'O' to 'P' shall indicate successful completion of a course.

(iii) Apart from the 08 (eight) regular Letter Grades listed in Table 1, there shall be 03 (three) additional Letter Grades, which shall be awarded if a Course is withdrawn or spanned over the next Semester or remains incomplete as stated in Table 2.

Table 2: Letter Grades and Grade Points

Letter Grade	Grade Points	Description
O	10	Outstanding
A+	9	Excellent
A	8	Very Good
B+	7	Good
B	6	Above Average
C	5	Average
P	4	Pass
F	0	Fail
Abs	0	Absent
UFM	0	Unfair Means

iv. Grade Point Average:

a. SGPA (Semester Grade Point Average)

The SGPA of a student in a Semester shall be the weighted average of the Grade Points secured by the student in all the Credit Courses (both Core and Elective Courses) he/she registered in that Semester, irrespective of whether he/she could or could not complete the Courses. More specifically, the calculation of SGPA shall take into account the Courses graded with Letter Grades 'O' to 'F' as given in Table 1.

$$\text{SGPA} = \frac{\sum_{i=1}^{n} C_i G_i}{\sum_{i=1}^{n} C_i} \qquad (1.1)$$

The SGPA of a student in a Semester shall be calculated on a 10-point scale using Equation (1.1) up to two decimal places, where n is the total number of Credit Courses registered by the student in that Semester, Gi is the Grade Point secured in the i^{th} registered Course and Ci is the Credit (weight) of that Course.

b. CGPA (Cumulative Grade Point Average)

(i) The CGPA of a student in a Semester of a Programme shall be the accumulated weighted average of the Grade Points secured by the student in all the Credit Courses (both Core and Elective Courses) he/she registered and successfully completed so far starting from the enrolment in the Programme. In other words, taking into account all the Courses graded with 'O' to 'P' as given in Table 1.1, generally the CGPA of a student shall be calculated starting from the first Semester of his/her enrolled Programme, while the CGPA of a lateral-entry student shall be calculated starting from the Semester of his/her enrolment.

(ii) The CGPA of a student in a Semester shall be calculated on a 10-point scale using Equation (1.2) up to two decimal places, where N is the total number of Credit Courses registered and successfully completed so far by the student, Gi is the Grade Point secured in the ith completed Course and Ci is the Credit (weight)of that Course.

$$\text{CGPA} = \frac{\sum_{i=1}^{N} C_i G_i}{\sum_{i=1}^{N} C_i} \qquad (1.2)$$

(iii) The CGPA shall be convertible into equivalent percentage of marks using Equation Conversion of CGPA to percentage marks: = CGPA*10

D. Post-Examination

i. Transcript or Grade Card or Certificate:

A marking certificate shall be issued to all the registered students after every Semester. The Semester mark sheet will display the course details (code, title, number of credits, grade secured) along with total credit earned in that Semester.

ii. Grievance Readdress Mechanism:

Students with any dissatisfaction or grievance regarding the marks awarded in any of the Papers / Courses may appeal to the Controller of Examinations for remedial action such as Re-evaluation within 10 days of the declaration of result.

(i) A student has options to appeal for re-evaluation of his /her answer script to the Controller of Examination.

(ii) Application for re-evaluation / re-scrutiny of answer scripts shall be made in the definite preform available with the Examination Office through the head of the respective departments within 10 days of declaration of the results of the respective examinations.

(iii) The Controller of Examination may appoint an examiner for re-evaluation and will consider and recognize the evaluation done by a University appointed examiner.

(iv) There shall be no provision for re-evaluation of the Practical Papers, Project Work, and Dissertation etc. However, the students fail in practical examination or viva voce and wish to appear again may apply to be evaluated can do so with the next schedule.

(v) After screening the application for re-evaluation, the CoE may send the answer scripts of the student to the examiners appointed by the CoE with the approval of Vice Chancellor.

(vi) The marks/grades achieved by the students after the re-evaluation shall be final and binding.

(vii) Fresh Marks – sheets / Grade Card shall be issued only if the candidate secures pass marks / passing grade in the re-evaluated paper.

(viii) Revaluation of answer scripts shall be deemed to be an additional facility provided to the students with a view to improving upon their results at the preceding examination result for any reason whatsoever shall not confer any right upon them for admission to next higher class which matters always be regulated in accordance with the relevant rules or regulations framed by the University.

(ix) If as a result of revaluation of the candidate attracts the provision of condonation of deficiency, the same may be applied to his/her only for fresh attempt.

INSTRUCTION TO TEACHERS AND STUDENTS

(Teaching and Learning Methods)

In all the courses the teacher has to select topics for teacher-method which should not be less than 20 percent. The approach will be direct classroom teaching through a series of lectures delivering concepts using ITC facilities, white or blackboard. Notes may also be circulated to the students; however, the students are to be involved in the preparation of the notes. The teacher will be responsible for selecting the best note for circulation. The teacher-centric methodology has recently fallen out of favour because this strategy for teaching is seen to favour passive students.

1. **Student- centric / Constructivist Approach:**

The topics of the courses may be selected at the start of the class and assigned one topic to each of the students for studying by themselves, prepare presentations, notes, etc., and present at respective class time after consultation and discussion with the course teachers. The teacher facilitates the learning of the students by guiding and providing input and explaining concepts. 60 percent of the course contents may be selected for this purpose. To avoid behaviour problems, teachers must lay a lot of groundwork in student-centric classrooms. Typically, it involves instilling a sense of responsibility in students. In addition, students must learn internal motivation.

a. Project-Based Learning: The teacher may select 5 percent of topics for the purpose and may conduct visits to the laboratory for experiments or field surveys. The selection of the topic may be done considering the available facility for the purpose. However, in the final semester of each of the programme the student has to undergo project-based learning at least 4 months duration. This approach will help the student to think critically, evaluate, analyze, make decisions, collaborate, and more.

b. Inquiry-Based Learning: The teacher/ students are supposed to list at least five questions in each contact hour and student solve these question or search for answer which becomes the home work for the students "question-driven" learning approach. The teacher may look for the correctness of the solution or the best possible answer and discuss in the successive class. This will help in the preparation for various competitive examination and develop a habit for search for solutions.

c. Flipped Classroom: About 10 percent of the course content has to be completed by this method. In this approach the students are asked to watch video or lecture prepared by the teacher or any video available (relevant to the course). A set of questions may be given to the students for searching answers by the students. The idea is that students should have more time in-classroom focusing on achieving these higher levels of thinking and learning. The Flipped classroom is also an acronym. The letters FLIP represent the four pillars included in this type of learning: Flexible environment, Learning culture shift, Intentional content, and Professional educator. As you can see, the second pillar refers to a culture shift from the traditional approach where students are more passive to an approach where students are active participants. As a result, this approach is also a student-centric teaching method.

d. Cooperative Learning: The remaining five percent has to be completed by cooperative learning approach. In this approach, the students are allotted problems. During library hours the students along with the teacher visit the library and search for probable solutions for the assigned problem. The same has to be done in groups so that the students discuss among themselves for the appropriate answers. Essentially, cooperative learning believes that social

interactions can improve learning. In addition, the approach recreates real-world work situations in which collaboration and cooperation are required.

The percentage categorization for the completion of a theory course

Teacher-centric or Direct Classroom Teaching: Delivery by series of lectures	20%
Student-centric Approach, Students present and deliver lectures in the presence of Teacher and supervised by teacher	60%
Students visit fields or perform experiments or teachers perform demonstration	05%
Flipped Classroom approach	10%
Cooperative learning approach	05%

Inquiry-based approach has to be followed in all of the classes

The teacher has to distribute the topics to be considered for teaching by the above-mentioned approaches and prepare a lesson plan for execution and maintain a file.

Breakdown of Credits

SN	Category		Total number of Credits
1	University Core (UC)	Skill Enhancement Course (SEC)	-
		Ability Enhancement Course (AEC)	6
		Field Training	-
		Discipline Specific Elective (DSE)	-
		Value Added Course (VAC)	1
2	University Elective (UE)	Multidisciplinary Course (MDC)	5
		Value Added Course (VAC)	4
3	Program Core (PC)	Discipline Specific Core (DSC)	44
		Field Training	-
		Research /Industry Internship	14
		Summer Internship	-
4	Program Elective (PE)	Discipline Specific Elective (DSE)	-
		Value Added Course (VAC)	9
5	Faculty Core (FC)	Skill Enhancement Course (SEC)	4
		Ability Enhancement Course (AEC)	-
Total			**87**

Breakdown by categories of courses

SN	Category	Credits	%
1	Physiotherapy	77	88.50 %
2	Science	05	5.74%
3	Paramedical Sciences	01	1.2 %
4	Humanities and social sciences	04	4.6%
Total		**87**	**100%**

SEMESTER WISE COURSE DISTRIBUTION

	S. No.	Course Code	Course Title	Course Category	Engagement							Maximum Marks for			
					L	T	P	S	R	O	C	IA*	SEE*	PE*	Total
Semester I	1.	23MPTO111R	Principles Of Physiotherapy Practice	DSC (Minor)	3	0	0	0	0	0	**3**	40	60	0	**100**
	2	23MPTO112R	Movement Science	DSC (Major)	3	0	6	0	0	0	**6**	40	60	100	**200**
	3	23UMPD111R	Effective Communication	AEC	0	0	4	0	0	0	**2**	0	0	100	**100**
	4	23UMFS111R	Fundamentals of Statistics	MDC	2	0	2	0	0	0	**3**	40	60	100	**200**
	5	23MPTO113R	Mini Research (Review of literature-R1)	DSC (Minor)	0	0	0	4	6	0	**2**	0	0	100	**100**
	6	23MPTOMC03	MOOCs-I***[1] (Coursera)	VAC	-	-	-	-	-	-	**1**	0	0	100	**100**
	Total										**17**	**120**	**180**	**500**	**800**

	S. No.	Course Code	Course Title	Course Category	Engagement							Maximum Marks for			
					L	T	P	S	R	O	C	IA*	SEE*	PE*	Total
Semester II	1.	23MPTO121R	Exercise Physiology	DSC (Major)	3	0	0	0	0	0	**3**	40	60	0	100
	2	23MPTO122R	Electro Physiology	DSC (Major)	3	0	0	0	0	0	**3**	40	60	0	100
	3	23MPTO123R	Physical & Functional Diagnosis	DSC (Major)	3	0	6	0	0	0	**6**	40	60	100	200
	4	23MPTOMC04/ 23MPTOMC05/ 23MPTOMC06	MOOCs-II***[2] (Coursera)	VAC	-	-	-	-	-	-	**2**	0	0	100	100
	5	23UMPD121R	Advanced Communication (Communicative English & Soft Skills)	AEC	0	0	4	0	0	0	**2**	0	0	100	100
	6	23UUHUV107R	Universal Human Value (UHV) + PROFESSIONAL ETHICS	VAC	1	0	0	0	0	0	**1**	40	60	0	100
	7	23MPTOGE01	A Life of Happiness and Fulfillment	VAC	2	0	0	0	0	0	**2**	40	60	0	100
	8	23UMRM121R	Research Methodology and Statistical Analysis	MDC	1	0	0	4	0	0	**2**	40	60	0	100
	9	23MPTO124R	Pedagogy of Physiotherapy Education (Techno Professional Skill – I)	SEC	0	0	4	0	0	0	**2**	0	0	100	100
	10	23MPTO125R	Mini Research (Research gap analysis-R2)	SEC	0	0	0	4	6	0	**2**	0	0	100	100
	Total										**25**	**240**	**360**	**500**	**1100**

	S. No.	Course Code	Course Title	Course Category	Engagement							Maximum Marks for			
					L	T	P	S	R	O	C	IA*	SEE*	PE*	Total
Semester III	1.	23MPTO211R	Physiotherapeutics	DSC (Major)	3	0	6	0	0	0	6	40	60	100	200
	2	23MPTO212R	**Elective:** Musculoskeletal Disorders and Sports	DSC (Major)	3	0	6	0	0	0	6**	40	60	100	200
	3	23MPTO213R	**Elective:** Neurological and Psychosomatic Disorders	DSC (Major)	3	0	6	0	0	0					
	4	23MPTO214R	**Elective**: Cardio-Respiratory Disorders	DSC (Major)	3	0	6	0	0	0					
	5	23MPTO215R	**Elective:** Paediatrics	DSC (Major)	3	0	6	0	0	0					
	6	23MPTOMC07 23MPTOMC08 23MPTOMC09	MOOCs-III***[3] (Coursera)	VAC	0	0	0	0	0	0	4	0	0	100	100
	7	23UMPD212R	Corporate Competency (Communicative English & Soft Skills)	AEC	0	0	4	0	0	0	2	0	0	100	100
	8	23MPTO201R	The Science of Solar System	VAC	-	-	-	-	-	-	2	0	0	100	100
	9	23UMRE214R	Research Ethics	DSC (Minor)	1	0	0	0	0	0	1	40	60	0	100
	10	23MPTO216R	Physiotherapy In Health Management and Administration (Techno Professional Skill – II)	DSC (Minor)	0	0	4	0	0	0	2	0	0	100	100
	11	23MPTO217R	Mini Research (Survey/experiments)-R3	Research	0	0	0	4	6	0	2	0	0	100	100
	Total										**25**	**120**	**180**	**700**	**1000**

	SN.	Course Code	Course Title	Course Category	Engagement							Maximum Marks for			
					L	T	P	S	R	O	C	IA*	SEE*	PE*	Total
Semester IV	**1**	23MPTO221R	Elective: Musculoskeletal Disorders and Sports	DSC (Major)	3	0	6	0	0	0	6**	40	60	100	200
	2	23MPTO222R	Elective: Neurological and Psychosomatic Disorders	DSC (Major)	3	0	6	0	0	0					
	3	23MPTO223R	Elective: Cardio-Respiratory Disorders	DSC (Major)	3	0	6	0	0	0					
	4	23MPTO224R	Elective: Paediatrics	DSC (Major)	3	0	6	0	0	0					
	5	23MPTO225R	Dissertation	Research	-	-	20	4	**6**	-	**12**	**0**	**0**	**100**	**100**
	6	23MPTOMC10 23MPTOMC11 23MPTOMC12	MOOCs-IV***[4]	VAC	-	-	-	-	-	-	**2**	**0**	**0**	**100**	**100**
	Total										**20**	**40**	**60**	**300**	**400**

***IA: Internal Assessment, SEE: Semester End Examination,**
PE: Practical Examination

**** Programme Elective (PE): Students must take any one course**

*****[1] MOOC-I**

1.Positive Psychiatri and Mental Health

*****[2] MOOC-III**

1. **Social psychology**
2. **The Arts and science of relationships: Understanding human needs.**

SEMESTER – I									
Course Title	**PRINCIPLES OF PHYSIOTERAPY PRACTICE**								
Course code	**23MPTO111R**	**Total Credits: 3**	**L**	**T**	**P**	**S**	**R**	**O/F**	**C**
		Total Hours: 45T	**3**	**0**	**0**	**0**	**0**	**0**	**3**
Pre-requisite	**Nil**	**Co-requisite**	**Nil**						
Programme	**Master of Physiotherapy**								
Semester	**Fall/ I semester of first year of the programme**								
Course Objectives	1. At the end of the course, the candidate will acquire the knowledge of a Ethical Codes of Physiotherapy practice, Moral and Legal aspects of Physiotherapy practice. 2. Introduce the students to the concepts related development of Physiotherapy Profession, History taking, assessment, tests, Patient communication, documentation of findings and treatment planning. 3. Documentation of rehabilitation assessment and management using International Classification of Functioning Disability and Health, Standardized tests and scale used in various conditions. 4. Practice different exercise therapy techniques and gain confidence in performing these skills before implementing the same on the patients so that high quality patient care is ensured.								
CO1	Understand Ethical codes of Physio Therapy practice.								
CO2	Understand moral and legal aspects Constitutions and Function of the Indian Association of Physiotherapists								
CO3	Impart the knowledge with the undergraduate student								
CO4	Acquire the brief knowledge of role of W.H.O. and W.C.P.T.								
CO5	Acquire the managerial & management skills in planning, implementation, & administration in clinical practice (service / self-employment) & academic activities including the skill of Documentation & use of information technology in professional practice.								

Unit-No.	Content	Contact Hour	Learning Outcome	KL
I	Development of Physiotherapy Profession.	**5**	Learn about history of physiotherapy profession, recent development of physiotherapy profession	1,2
II	Ethical issues in practice of physiotherapy- a. Clinical, Research and Academics. b. Administration, legislation, rules and regulations governing physiotherapy practice- National & International (WCPT and IAP). c. Scope of Physiotherapy in Hospital, Community & Industry.	**10**	Learn about Clinical, Research, Administration, legislation and regulations governing physiotherapy practice.	1,2, 3,4
III	History taking, assessment, tests, Patient communication, documentation of findings, treatment Organization and planning/execution for intervention.	**10**	Learn about Physiotherapy assessment, treatment planning, use of various tools and interventions.	1,2, 3,4
IV	Documentation of rehabilitation assessment and management using International Classification of Functioning Disability and Health (ICF)	**8**	Learn about classification of various model of ICF	1,2, 3,4,5
V	Standardized tests and scales used in various types of cases for assessment and interpretation in Physiotherapy practice.	**12**	Learn about various Tests and Scales use in Physiotherapy Practice.	1,2,3, 4,5,6

TEXT BOOKS:

T1: Physical therapy Research- Domholdt, W.B Saunders, Philadelphia. 1993
T2: Public power & Administration – Wilenski, Hale & Iremonger, 1999

REFERENCE BOOKS:

R1: Public Therapy administration & Management – Hickik Robert
R2: Management Principles for physiotherapists – Nosse Lorry

RELATIONSHIP BETWEEN COURSE OUTCOMES (CO) AND PROGRAMME OUTCOMES

CO PO Mapping		
SN	**Course Outcome (CO)**	**Mapped Programme outcome**
1	Understand Ethical codes of Physio Therapy practice.	**1,2,3,4,5,6,7,8**
2	Understand moral and legal aspects Constitutions and Function of the Indian Association of Physiotherapists	**1,2,3,4,5,6,7,8**
3	Impart the knowledge with the undergraduate student	**1,2,3,4,5,6,7,8**
4	Acquire the brief knowledge of role of W.H.O. and W.C.P.T.	**1,2,3,4,5,6,7,8**
5	Acquire the managerial & management skills in planning, implementation, & administration in clinical practice (service/ self-employment) & academic activities including the skill of Documentation & use of information technology in professional practice.	**1,2,3,4,5,6,7,8**

SEMESTER – I										
Course Title	**MOVEMENT SCIENCE**									
Course code	**23MPTO112R**	**Total Credits: 6**	**L**	**T**	**P**	**S**	**R**	**O/F**	**C**
		Total Hours: 45T+90P	**3**	**0**	**6**	**0**	**0**	**0**	**6**
Pre-requisite	**Nil**	**Co-requisite**	**Nil**						
Programme	**Master of Physiotherapy**								
Semester	**Fall/ I semester of first year of the programme**								
Course Objectives	1. Introduce the students to the concepts related to Biomechanics of tissues & structures of musculoskeletal system. 2. Normal & Applied Biomechanics, Biomechanics of Posture, Biomechanics of: Respiration, Circulation, Hand function, Gait. 3. Biomechanics of Posture, Biomechanics of: Respiration, Circulation, Hand function, Gait.								
CO1	Acquire the updated knowledge of the Patho-mechanics of the human movement and apply the principles of Biomechanics in functional analysis of movement Ergonomic analysis / advice prosthesis /Orthosis.								
CO2	Plan out & train in the application of lower limb, upper prostheses, Spinal /lower / upper extremity Orthoses used as mobility aids								
CO3	Design the ergonomic alternations at the work place industry and to fabricate, temporary hand splints and functional splints for gait training.								
CO4	Acquire and apply the skill in disability evaluation and will be able to certify the same.								
CO5	Comprehend the subject at the undergraduate level Course Content Topic.								

Unit-No.	Content	Contact Hour	Learning Outcome	KL
I	**Biomechanics of tissues & structures of musculoskeletal system**: a. Bone, Articular Cartilage, Tendons & Ligaments b. Peripheral Nerves & Spinal Nerve Roots, Skeletal Muscle	**5**	To learn about the biomechanics of bones, connective tissue, muscles etc.	1,2
II	**Normal & Applied Biomechanics of**: a. Spine b. Upper extremity c. Lower extremity	**5**	To learn about the normal & applied Biomechanics of Spine, Upper extremity & Lower extremity	1,2,3,4
III	**Biomechanics of Posture** Biomechanics of: a. Respiration, Circulation, Hand function Gait	**10**	To learn about the Biomechanics of Posture, respiration, hand function, Gait	1,2,3,4
IV	**Methods of Kinetics & Kinematics investigation**	**15**	To learn about the Methods of Kinetics & Kinematics investigation	1,2,3, 4,5
V	Patient Positioning, Body Mechanics & Transfer Techniques Ergonomic Approach to lifting & handling, workplace & environment	**10**	To learn about the Ergonomic Approach, Patient Positioning, Body Mechanics & Transfer Techniques	1,2,3, 4,5,6

Practical	1. Students will be better prepared to assess and treat musculoskeletal and movement disorders. 2. Students can contribute to advancing rehabilitation techniques and technologies. 3. Skills in kinetics and kinematics investigation prepare students for careers in biomechanical research and development. 4. Knowledge of the biomechanics of the shoulder, elbow, wrist, and hand helps students understand the mechanics of upper limb movements. 5. Students can apply this knowledge to design better rehabilitation protocols for patients recovering from upper extremity injuries.	90	To learn about the Ergonomic Approach, Patient Positioning, Body Mechanics & Transfer Techniques	1,3, 4,6

TEXT BOOKS:

T1: 1. Biomechanics and motor control of human movement **by** David A. Winter.

T2: 2.Joint Structure and Function A Comprehensive Analysis (Kindle Edition)by Pamela K. Levangie

REFERENCE BOOKS:

R1: Sustainable fitness: a practical guide to health, healing, and wellness **by** Z. Altug.

RELATIONSHIP BETWEEN COURSE OUTCOMES (CO) AND PROGRAMME OUTCOMES

CO PO Mapping		
SN	**Course Outcome (CO)**	**Mapped Programme outcome**
1	Acquire the updated knowledge of the Patho-mechanics of the human movement and apply the principles of Biomechanics in functional analysis of movement Ergonomic analysis / advice prosthesis /Orthosis.	**1,2,3,4,5,6,7,8**
2	Plan out & train in the application of lower limb, upper prostheses, Spinal /lower / upper extremity Orthoses used as mobility aids	**1,2,3,4,5,6,7,8**
3	Design the ergonomic alternations at the work place industry and to fabricate, temporary hand splints and functional splints for gait training.	**1,2,3,4,5,6,7,8**
4	Acquire and apply the skill in disability evaluation and will be able to certify the same.	**1,2,3,4,5,6,7,8**
5	Comprehend the subject at the undergraduate level Course Content Topic.	**1,2,3,4,5,6,7,8**

SEMESTER – I										
Course Title	**EFFECTIVE COMMUNICATION** (Communicative English & Soft Skills)									
Course code	**23UMPD111R**	**Total Credits: 2**	**L**	**T**	**P**	**S**	**R**	**O/F**	**C**	
		Total Hours: 60P	**0**	**0**	**4**	**0**	**0**	**0**	**2**	
Pre-requisite	**Nil**	**Co-requisite**	**Nil**							
Programme	**Master of Physiotherapy**									
Semester	**Fall/ I semester of first year of the programme**									
Course Objectives	1. To encourage proficient interaction and interpersonal abilities. 2. To surmount communication obstacles and elevate the caliber of interpersonal Engagements. 3. To provide students with the expertise and insight required to craft persuasive and Efficient job application materials. 4. To enable students to convey messages with assurance and effectiveness in Public environments. 5. To boost students' lexicon and refine their mastery of the English language.									
CO1	Cultivate self-assurance in speech through enhanced pronunciation.									
CO2	Enable to grasp the intricacies of the communication process and recognize potential Barriers.									
CO3	Acquire skills in delivering effective presentations									
CO4	Enable to craft resumes and gain insight into the realm of professional Networking.									
CO5	Understand the importance of nonverbal communication cues									
CO6	Broaden their lexicon and elevate their proficiency in the English language.									

Unit-No.	**Content**	**Contact Hour**	**Learning Outcome**	**KL**
I	**Grammar** i. Interchange of Interrogative and Assertive Sentences, Exclamatory and Assertive Sentences ii. Types of Tenses iii. Common Errors iv. Synonyms v. Antonyms vi. Homonyms	**12**	Students will demonstrate a fundamental understanding of grammar rules.	1,2, 3
II	**Reading Skills** i. Techniques of Effective Reading ii. Gathering ideas and information from a text The SQ3R Technique Interpret the text	**12**	Students will construct grammatically correct and varied sentence types.	1,2, 3,4
III	**Listening Skills** i. What is listening? ii. The Process of Listening iii. Factors that adversely affect Listening iv. Difference between Listening and Hearing, v. Purpose and Importance of Effective Listening vi. How to Improve Listening Process,	**12**	Students will confidently introduce themselves and engage in basic conversations with correct pronunciation.	1,2, 3

IV	**Conflict Management** i. Definition ii. Type of Conflict Management iii. Effects of Conflict Management iv. Methods to deal with Conflicts (Negative)	**12**	Students will effectively communicate in both formal and informal settings.	1,2, 3
V	**Time-Management Skills** i. Introduction To Time Management, ii. Purpose And Importance of Time Management, iii. Basic Tips to Maintain Time.	**12**	Students will deliver well-organized and visually supported presentations.	1,2

TEXT BOOKS:

T1: Wren, P. C and Martin, H.1995.*HighSchool English Grammar and Composition*, S Chand Publishing.
T2: *English Grammar in Use*, Raymond Murphy 4th edition,CUP.
T3: Barrett, Grant. 2016. *Perfect English Grammar: The Indispensible Guide to Excellent Writing and Speaking*,Zephyros Press.

REFERENCE BOOKS:

R1: English Vocabulary in Use(Advanced),Michael McCarthy and Felicity, CUP.
R2: Effective Communication and Soft Skills, Nitin Bhatnagar, Pearsons.

OTHER LEARNING RESOURCES:

https://www.classcentral.com/report/toefl-preparation/
https://brightlinkprep.com/10-best-toefl-prep-books/

RELATIONSHIP BETWEEN COURSE OUTCOMES (CO) AND PROGRAMME OUTCOMES

CO PO Mapping		
SN	**Course Outcome (CO)**	**Mapped Programme outcome**
1	This course will enable students to analysis and identify the different types of sentences.	**5,8**
2	Learners will be able to integrate the skills of reading and speaking in professional communication.	**5,8**
3	Dress code Etiquette sessions will boost their confidence and morals.	**6**
4	Students will learn about the effective and efficient utilization of time.	**4, 5, 6,7,8**
5	Introduction to Phonetics and its importance will improve the learners 'pronunciation	**5**

SEMESTER – I									
Course Title	**FUNDAMENTALS OF STATISTICS**								
Course code	**23UMFS111R**	**Total Credits: 3**	**L**	**T**	**P**	**S**	**R**	**O/F**	**C**
		Total Hours: 30T+30P	**2**	**0**	**2**	**0**	**0**	**0**	**3**
Pre-requisite	**Nil**	**Co-requisite**	**Nil**						
Programme	**Master of Physiotherapy**								
Semester	**Fall/ I semester of first year of the programme**								
Course Objectives	1.Help to understand the role of statistics in data analysis, decision-making, and scientific research 2.Introduce students to descriptive statistics, including measures of central tendency (mean, median, mode) and measures of dispersion (range, variance, standard deviation). 3.Teach students how to summarize and present data effectively using tables, charts, and graphs								
CO1	Improve understanding of Descriptive Statistics and Demography.								
CO2	Develop knowledge to understand the Probability theory, Distribution, and sampling methods.								
CO3	Develop knowledge to understand the methods for hypothesis testing and Biological data analysis.								
CO4	Develop knowledge to understand the principles of various statistical analyses of data.								
CO5	Develop knowledge on R language for data analysis								

Unit-No.	Content	Contact Hour	Learning Outcome	KL
I	**Statistical Methods:** Definition and scope of Statistics, concepts of statistical population and sample. Data: quantitative and qualitative, attributes, variables, scales of measurement nominal, ordinal, interval and ratio.	5	Foundational Understanding of Statistical Concepts	1,2
II	**Presentation:** tabular and graphical, including histogram and ogives. Measures of Central Tendency: mathematical and positional. Measures of Dispersion: range, quartile deviation, mean deviation, standard deviation, coefficient of variation, skewness and kurtosis	5	Proficiency in Data Presentation and Analysis	1,2
III	**Bivariate Data:** Definition, scatter diagram, simple, partial and multiple correlation (3 variables only), rank correlation. Simple line arregression, fitting of polynomials and exponential curves.	5	Knowledge on Analyzing Bivariate Data and Relationships	1,2

IV	**Random Experiment:** trial, sample point and sample space, event, Operations of Events, concepts of mutually exclusive and exhaustive events. Definition of probability: classical and relative frequency approach. Discrete probability space, Properties of probability, Independence of events, Conditional probability, total and compound probability rules, Normal probability Distribution, Bionomial probability Distribution, Poisson Probability Distribution, Bayes' theorem and its applications.	8	Understanding of Probability and Distributions	1,2
V	**Testing of hypothesis, parametric test:** t-test, z-test, chi-square test. Non-Parametric test: One sample Kolmogorov test, wilcoxon Signed test, Mann-Whitney Test, Kruskalwalis test	7	Application of Hypothesis Testing and Statistical Tests	1,2
Practical	1.Introduction to R - A programming language and environment for data analysis and graphics. Syntax of R expressions: Vectors and assignment, vector arithmetic, generating regular sequence, logical vector, character vectors, Index vectors; selecting and modifying subsets of dataset 2.Data objects: Basic data objects, matrices, partition of matrices, arrays, lists, creating and using these objects; Functions- Elementary functions and summary functions, applying functions to subsets of data. Data frames: The benefits of data frames, creating data frames, combining data frames, Adding new classes of variables to data frames; Data frame attributes. 3.Importing data files: import. data function, read. table function; Exporting data: export. data function, cat, write, and write. table functions, function, formatting output - options, and format functions; Exporting graphs -export. graph function. Graphics in R: creating graphs using plot function, box plot, histogram, line plot, steam and leaf plot, pie chart, bar chart, multiple plot layout, plot titles, formatting plot axes; Visualizing the multivariate data: Scatter plot, Q-Q plot, P-Pplot. 4.Performing data analysis tasks: Reading data with scan function, exploring data using graphical tools, computing descriptive statistics, one sample tests, two sample tests, Goodness of fit tests. 5.Parametric test and non-Parametric test	30	A brief knowledge on using R for data analysis and visualization	1,2, 3,4

TEXT BOOKS:

T1: Methods in Biostatistics by K S Negi , ISBN:9789374735053,4th Edition, Year:2023, AITBS Publishers, INDIA

T2: Dowdy, S., Wearden, S., & Chilko, D. (2011). *Statistics for research*. John Wiley & Sons.

REFERENCE BOOKS:

R1: "Introduction to the Practice of Statistics" by David S. Moore, George P. McCabe, and Bruce A. Craig

R2: "Statistics" by David Freedman, Robert Pisani, and Roger Purves

OTHER LEARNING RESOURCES:

1. **https://www.youtube.com/watch?v=DWv-4rVY_L8**
2. **https://umsystem.pressbooks.pub/isps/front-matter/introduction/**

RELATIONSHIP BETWEEN COURSE OUTCOMES (CO) AND PROGRAMME OUTCOMES

CO PO Mapping		
SN	**Course Outcome (CO)**	**Mapped Programme outcome**
1	Improve understanding of Descriptive Statistics and Demography.	**5**
2	Develop knowledge to understand the Probability theory, Distribution, and sampling methods.	**4**
3	Develop knowledge to understand the methods for hypothesis testing and Biological data analysis.	**4**
4	Develop knowledge to understand the principles of various statistical analyses of data.	**4**
5	Develop knowledge on R language for data analysis	**4**

SEMESTER – I									
Course Title	**MINI RESEARCH (Review of literature-R1)**								
Course code	**23MPTO113R**	**Total Credits:2**	**L**	**T**	**P**	**S**	**R**	**O/F**	**C**
		Total Hours:150	**0**	**0**	**0**	**4**	**6**	**0**	**2**
Pre-requisite	**Nil**	**Co-requisite**	**Nil**						
Programme	**Master of Physiotherapy**								
Semester	**Fall/ I semester of first year of the programme**								
Course Objectives	1. To learn to review and assess scientific literature critically. 2. To write and present an overview of the relevant literature for a specific research topic. 3. To provide students with a hands-on experience in conducting a small-scale research project.								
CO1	Identify the most relevant textbooks, reviews, papers and journals for their research topics.								
CO2	Understand how to critically read and assess research papers and reviews								
CO3	Understand the procedure of writing systematic literature review.								
CO4	Apply the understanding of a systematic literature review on their chosen topics.								
CO5	Gain familiarity with the current knowledge in your chosen field, as well as the boundaries and limitations of that field.								

Unit-No.	Content	Contact Hour	Learning Outcome	KL
I	Introduction to Literature Review/Scholarly Writing: Both Indian & foreign, Chronological reporting Gap in Research on topic Literature, Need for Literature Review, Theoretical and Conceptual framework, Of review of literature of the study. Web Search Sources of Review of	30	Construct foundational knowledge and techniques of research writing.	1,2
II	Advanced Search Techniques for Research through internet**.**	30	Capable to identify good research paper from internet.	1,2,3,4
III	Referencing style: Referencing and various formats for reference Writing of books and research papers.	30	Capable of referencing various sources	1,2,3,4
IV	Ethical considerations in research: Ethical considerations for Conducting research and publication	30	Learn about the importance of ethical consideration in research writing	1,2,3,4
V	Practical training in Literature review: Selecting one of the major key concepts and variables from the topic of the research and writing review literature with different sources and its assessment by the Supervisor.	30	Able to select one of the major key concepts and variables from the chosen Research topic.	1,2,3,4

TEXT BOOKS:

T1: Fink, A. (2019). Conducting research literature reviews: From the internet to paper. Sage publications.

REFERENCE BOOKS:

R1: Fink, A. (2019). *Conducting research literature reviews: From the internet to paper*. Sage publications.

R2: Cooper, H. (1998). Cooper, Harris, Synthesizing Research: A Guide for Literature Reviews, Thousand Oaks, CA: Sage, 1998.

R3: Hart, C. (2018). Doing a literature review: Releasing the research imagination.

RELATIONSHIP BETWEEN COURSE OUTCOMES (CO) AND PROGRAMME OUTCOMES

CO PO Mapping		
SN	**Course Outcome (CO)**	**Mapped Programme outcome**
1	Identify the most relevant textbooks, reviews, papers and journals for their research topics.	**1,2,3,4,5,6,7,8**
2	Understand how to critically read and assess research papers and reviews	**1,2,3,4,5,6,7,8**
3	Understand the procedure of writing systematic literature review.	**1,2,3,4,5,6,7,8**
4	Apply the understanding of a systematic literature review on their chosen topics.	**1,2,3,4,5,6,7,8**
5	Gain familiarity with the current knowledge in your chosen field, as well as the boundaries and limitations of that field.	**1,2,3,4,5,6,7,8**

SEMESTER – II									
Course Title	**EXERCISE PHYSIOLOGY**								
Course code	**23MPTO121R**	**Total Credits: 3**	**L**	**T**	**P**	**S**	**R**	**O/F**	**C**
		Total Hours: 45T	**3**	**0**	**0**	**0**	**0**	**0**	**3**
Pre-requisite	**Exercise Therapy &Human Physiology**	**Co-requisite**	**Nil**						
Programme	**Master of Physiotherapy**								
Semester	**Winter / II semester of first year of the programme**								
Course Objectives	**1.** Introduce the students to the concepts related Sources of Energy, Physiology of Movement, Environmental influence on Performance, Special aids to performance and conditioning, Body consumption, nutrition and caloric balance, Considerations of age and sex in exercise and training. 2. Exercise prescription for cardiovascular disease, Obesity and Diabetes, Fatigue assessment. 3. To develop exercise plans to improve health and fitness.								
CO1	Acquire and apply the update knowledge of Physiology and Physical exercise & will be able to interpret the physiological effects of the vital parameters of simple laboratory tests, "Stress Test"								
CO2	Acquire and apply the skill of using Bicycle – Ergometer& Treadmill for the purpose of General Fitness & Exercise tolerance for Healthy persons.								
CO3	Plan out & train for general fitness & health promotion for children, pregnant/ lactating females, Obese & elderly subjects.								
CO4	Design exercise prescription to improve health and fitness for obese and diabetic person.								
CO5	Impart knowledge for training the undergraduate student.								

Unit-No.	**Content**	**Contact Hour**	**Learning Outcome**	**KL**
I	Sources of Energy, Energy Transfer and Energy Expenditure at rest and various physical activities.	**9**	To learn about the Sources of Energy, Energy Transfer and Energy Expenditure at rest and various physical activities.	1,2
II	Physiology of Movement	**9**	To learn the Physiology of Movement	1,2, 3,4
III	Responses and Adaptations of various systems to Exercise and training. Environmental influence on Performance.	**9**	To learn about the adaptations of various systems to Exercise and training. Environmental influence on Performance.	1,2, 3,4
IV	Special aids to performance and conditioning. Body consumption, nutrition and caloric balance. Considerations of age and sex in exercise and training.	**9**	To learn about the Special aids to performance and conditioning. Body consumption, nutrition and caloric balance.	1,2, 3,4
V	Exercise prescription for health and fitness with special emphasis to cardiovascular disease, Obesity and Diabetes. Fatigue assessment and scientific organization of work-rest regimes to control fatigue.	**9**	To learn about the Exercise prescription for health and fitness with special emphasis to cardiovascular disease, Obesity and Diabetes.	1,2,3, 4,5

TEXT BOOKS:

T1: Advanced Exercise Physiology (English, Hardcover, Ehrman Jonathan K.)

REFERENCE BOOKS:

R1: Exercise Physiology Paperback – 1 January 2016 by B Srilakshmi

RELATIONSHIP BETWEEN COURSE OUTCOMES (CO) AND PROGRAMME OUTCOMES

CO PO Mapping		
SN	**Course Outcome (CO)**	**Mapped Programme outcome**
1	1. Acquire and apply the update knowledge of Physiology and Physical exercise & will be able to interpret the physiological effects of the vital parameters of simple laboratory tests, "Stress Test"	**1,2,3,4,5,6,7,8**
2	2. Acquire and apply the skill of using Bicycle – Ergometry& Treadmill for the purpose of General Fitness & Exercise tolerance for Healthy persons.	**1,2,3,4,5,6,7,8**
3	3. Plan out & train for general fitness & health promotion for children, pregnant/ lactating females, Obese & elderly subjects.	**1,2,3,4,5,6,7,8**
4	4. Design exercise prescription to improve health and fitness for obese and diabetic person.	**1,2,3,4,5,6,7,8**
5	5. Impart knowledge for training the undergraduate student.	**1,2,3,4,5,6,7,8**

SEMESTER – II									
Course Title	**ELECTRO PHYSIOLOGY**								
Course code	**23MPTO122R**	**Total Credits: 3**	**L**	**T**	**P**	**S**	**R**	**O/F**	**C**
		Total Hours: 45T	**3**	**0**	**0**	**0**	**0**	**0**	**3**
Pre-requisite	**Electro Therapy & Human Physiology**	**Co-Requisite**	**Nil**						
Programme	**Master of Physiotherapy**								
Semester	**Winter / II semester of first year of the programme**								
Course Objectives	1. Introduce the students to the concepts related Characteristics and components of Electro therapeutic stimulation systems, Instrumentation for neuromuscular electrical stimulation, Anatomy and physiology of peripheral nerve, muscle and neuromuscular junction, Electrical properties, Clinical Electro physiological testing. 2. Acquire the updated knowledge of production / biophysics as well as the Physiological / therapeutics effects (at the cellular levels) of various electrical currents, Thermal agents, ultra sound & electro – magnetic forces & potential risk factors on prolonged exposure. 3. To provide a comprehensive understanding of how electrical signals are generated and propagated within living organisms.								
CO1	Interpret the E.M.G. and nerve conduction studies with appropriate clinical reasoning								
CO2	Gain expertise in the skill of using various electrical currents for the purpose of Electro diagnosis and able to interpret the same.								
CO3	Understand different approaches in re-education of paralytic cases, different degrees of nerve injuries and its clinical implication								
CO4	Acquire the sound knowledge of E.M.G. machine for the simple electro diagnosis of motor unit and methodology of sensory and Motor conduction, Reflex study.								
CO5	Impart the knowledge about the muscles plasticity in response to electrical stimulation								

Unit-No.	Content	Contact Hour	Learning Outcome	KL
I	Characteristics and components of Electro therapeutic stimulation systems Electro-physiological assessment devices.	8	To learn the techniques of assessment using various electro-physiological devices.	1,2
II	Instrumentation for neuromuscular electrical stimulation. Electrical stimulation and its effects on various systems.	12	To learn the Electrical stimulation and its effects.	1,2, 3,4
III	Anatomy and physiology of peripheral nerve, muscle and neuromuscular junction.	10	To learn about the Anatomy and physiology of peripheral nerve, muscle and neuromuscular junction.	1,2, 3,4
IV	Electrical properties of muscle and nerve. Clinical Electro physiological testing.	14	To learn about the Clinical Electro physiological testing	1,2, 3,4
V	Muscles plasticity in response to electrical stimulation.	6	To learn about the muscles plasticity in response to electrical stimulation	1,2, 3,4,5

TEXT BOOKS:

T1: Clinical Electrophysiology - Robinson
T2: Electrotherapy Explain – Low & Read
T3: Electrotherapy – Sheila Kitchen

REFERENCE BOOKS:

R1: Clinical Neurophysiology – U K Mishra
R2: Electro Diagnosis in Diseases of Nerve and Muscle – Jun Kimura
R3: Fundamental of Neurophysiology – R F Schmidti

OTHER LEARNING RESOURCES:

1. Subject related Journals, websites, link etc.
2. Google scholar
3. PubMed

RELATIONSHIP BETWEEN COURSE OUTCOMES (CO) AND PROGRAMME OUTCOMES

CO PO Mapping		
SN	**Course Outcome (CO)**	**Mapped Programme outcome**
1	Interpret the E.M.G. and nerve conduction studies with appropriate clinical reasoning	**1,2,3,4,5,6,7,8**
2	Gain expertise in the skill of using various electrical currents for the purpose of Electro diagnosis and able to interpret the same.	**1,2,3,4,5,6,7,8**
3	Understand different approaches in re-education of paralytic cases, different degrees of nerve injuries and its clinical implication	**1,2,3,4,5,6,7,8**
4	Acquire the sound knowledge of E.M.G. machine for the simple electro diagnosis of motor unit and methodology of sensory and Motor conduction, Reflex study.	**1,2,3,4,5,6,7,8**
5	Impart the knowledge about the muscles plasticity in response to electrical stimulation	**1,2,3,4,5,6,7,8**

SEMESTER – II									
Course Title	**PHYSICAL & FUNCTIONAL DIAGNOSIS**								
Course code	**23MPTO123R**	**Total Credits: 6**	**L**	**T**	**P**	**S**	**R**	**O/F**	**C**
		Total Hours: 45T+90P	**3**	**0**	**6**	**0**	**0**	**0**	**6**
Pre-requisite	**Anatomy, Physiology, Clinical Orthopaedics, Clinical Neurology, Clinical Cardiopulmonary, Exercise Therapy and Electro Therapy**	**Co-Requisite**	**Nil**						
Programme	**Master of Physiotherapy**								
Semester	**Winter / II semester of first year of the programme**								
Course Objectives	1. Understand the theoretical basis and principles of manipulative skills, neurotherapeutic skills and skills of cardiopulmonary care and resuscitation 2. Perform assessment of measures of body structures and functions related to tissue mechanics. 3. Allowing them to identify and diagnose musculoskeletal, neurological, and cardiopulmonary conditions								
CO1	Understand the use of appropriate tools or instruments of assessment for diagnosis in various diseases and disorders including musculoskeletal, neurological and cardio-vascular pulmonary conditions								
CO2	Understand the use of diagnosis for physiotherapy practice.								
CO3	Learn the applied aspect of the subject for physiotherapy practice**.**								
CO4	Perform assessment of measures of body structures and functions related to tissue mechanics.								
CO5	Apply skills of manual therapy musculoskeletal, neuro-therapeutics and cardiovascular and respiratory skills on models.								

Unit-No.	**Content**	**Contact Hour**	**Learning Outcome**	**KL**
I	Clinical examination in general and detection of movement dysfunction. Principles of pathological investigations and imaging techniques related to neuromuscular, skeletal and cardiopulmonary disorders with interpretation. Pulmonary function tests and Spirometer	**9**	By the completion of this topics the students will be able to examine and detect movement dysfunctions of all the disorders related to neurology, orthopaedics, cardiopulmonary.	1,2
II	Developmental screening, motor learning –motor control assessment. Evaluation of aging. EMG and Biofeedback.	**9**	By the end the students will know how to evaluate the EMG and biofeedback and developmental screening	1,2,3,4
III	Anthropometric measurements. Physical disability evaluation and disability diagnosis. Physical fitness assessment by Range of motion, Muscle strength, endurance and skills, Body consumption, Fitness test for sports.	**9**	The students will be able to know and apply anthropometric measurements, diagnose the physical disability and assess the ROM, strength and endurance.	1,2,3,4

IV	• Evaluation Methods, Special tests and Scales used in Musculoskeletal, Neurological and Cardiopulmonary disorders. • Exercise ECG testing and monitoring.	**9**	By the end the students will be able to know the evaluation methods using the scales in musculoskeletal, neurological and cardiopulmonary disorders.	1,2,3,4
V	Biophysical measurements, physiotherapy modalities, techniques and approaches. Aids and appliances, adaptive functional devices to improve movement dysfunction. Gait analysis and diagnosis.	**9**	By the end the students will be able to measure the biophysical measurements using modalities and techniques. Aids and appliances to improve the movement dysfunction.	1,2,3, 4,5,6
Practical	1. Anthropometric data analysis for health risks. 2. Demonstrate the Utilization of standardized scales and tools for assessing disabilities 3. Students practice techniques for assessing cardiovascular and respiratory function, including spirometer and cardiac stress tests. 4. Students learn to conduct and interpret exercise ECG tests, essential for assessing cardiac function during physical activity. Techniques for evaluating balance, mobility, and cognitive function in elderly patients are covered, preparing students for work in geriatric care.	**90**	By the end the students will be able to measure the biophysical measurements using modalities and techniques. Aids and appliances to improve the movement dysfunction	1,2,5,6

TEXT BOOKS:

T1: Orthopaedic Physical Assessment, Magee DJ. 5th edition. Saunders

T2: Muscles: Testing and Function, with Posture and Pain: 5th edition. Kendall FP; McCreary EK et al. Lippincott Williams and Wilkins

T3: Practical Exercise Therapy: 3rd edition. Hollis M; Cook PF. Wiley-Blackwell

REFERENCE BOOKS:

R1: Training in the Community for the people with disabilities. Goerdt et al. World Health Organization

R2: Hand Rehabilitation- A practical Guide. 2nd edition. Clark GL. Churchill Livingstone

R3: Physiotherapy for Respiratory and Cardiac Problems. Adults and Paediatrics. 3rd ed. Pryor JA, Webber BA. London: Churchill Livingstone, 2002.

R4: Training in the Community for the people with disability – Hallender Padmini Mendes Hand Physical Rehabilitation. Assessment and Treatment: 5th Edition. Sullivan SO; Schmitz TJ. F.A. Davis Company

R5: Daniels and Worthingham's Muscle Testing: Techniques of Manual Examination. 8th edition. Hislop H; Montgomery J. Saunders Publication

R6: Hand Rehabilitation – Toubiana

R7: Therapeutic Exercise Moving toward Function: 3rd edition. Carie MH; Brody LT. Lippincott Williams and Wilkins.

R8: Therapeutic Exercise: 6th edition. Carolyn K; Kolby. Jaypee Brothers Medical Publisher.

RELATIONSHIP BETWEEN COURSE OUTCOMES (CO) AND PROGRAMME OUTCOMES

CO PO Mapping		
SN	**Course Outcome (CO)**	**Mapped Programme outcome**
1	Understand the use of appropriate tools or instruments of assessment for diagnosis in various diseases and disorders including musculoskeletal, neurological and cardio-vascular pulmonary conditions	**1,2,3,4,5,6,7,8**
2	Understand the use of diagnosis for physiotherapy practice.	**1,2,3,4,5,6,7,8**
3	Learn the applied aspect of the subject for physiotherapy practice**.**	**1,2,3,4,5,6,7,8**
4	Perform assessment of measures of body structures and functions related to tissue mechanics.	**1,2,3,4,5,6,7,8**
5	Apply skills of manual therapy musculoskeletal, neuro-therapeutics and cardiovascular and respiratory skills on models.	**1,2,3,4,5,6,7,8**

SEMESTER – II									
Course Title	**ADVANCED COMMUNICATION** (Communicative English & Soft Skills)								
Course code	**23UMPD121R**	**Total Credits:2** **Total Hours: 60P**	**L**	**T**	**P**	**S**	**R**	**O/F**	**C**
			0	**0**	**4**	**0**	**0**	**0**	**2**
Pre-requisite	**23UMPD111R Advanced Communication**	**Co-Requisite**	**Nil**						
Programme	**Master of Physiotherapy**								
Semester	**Winter / II semester of first year of the programme**								
Course Objectives:	1. To familiarize students with the transformation of sentences and the appropriate use of prepositions. 2. To enhance the writing skills indifferent areas including CV and cover letter writing. 3. To convey meaning by reinforcing, substituting for or contradicting verbal communication. 4. Productivity and performance boosting activities for professional goal achievement.								
CO1	Enable the students to take initiative, guide the discussion, and influence others positively.								
CO2	Improve student's ability in framing different sentences while speaking and writing								
CO3	Develop writing skills in different areas including paragraph and email.								
CO4	Plan efficiently for discussions in different platforms by enhancing their thought process and problem-solving skills								
CO5	Encompass personal growth, career advancement, enhanced communication, and the ability to navigate a variety of professional situations successfully								

Unit-No.	Content	Contact Hour	Learning Outcome	KL
I	**Grammar:** i. Use of Prepositions ii. Tag questions iii. Idioms, Phrases and Clauses iv. Simple, complex, compound sentences	**12**	Students will master the correct use of prepositions in various contexts.	1,2, 3
II	**Writing Skills:** i. The Basics of Writing; avoid ambiguity and vagueness ii. Paragraph Writing iii. Precis Writing iv. Letter Writing v. Resume, CV and Cover Letter	**12**	Students will learn to write clearly, avoiding ambiguity and vagueness.	1,2, 3,4
III	**Self-Management Skills** i. SWOT Analysis ii. Self-Regulation-Goal Setting iii. Personal Hygiene	**12**	Students will conduct personal SWOT analyses to identify strengths, weaknesses, opportunities, and threats.	1,2, 3

IV	**Non-Verbal Communication-Sciences of Body Language** i. What is Non-Verbal Communication & Body Language, ii. Elements of Communication, iii. Types of Body Language, iv. Importance and Impact of Body Language, v. Types of Communication through Body Language, vi. Introduction to Haptic, Introduction to Kinesics, vii. Introduction to Proxemics, Body Language Do's and Don'ts, Doubt Clearing Session	**12**	Students will grasp the basics of non-verbal communication and body language.	1,2, 3
V	**Group Discussion (Theory)** i. Importance, ii. Planning, Elements, and Skills assessed; iii. Effectively disagreeing, iv. Initiating, Summarizing and Attaining the Objective	**12**	Students will appreciate the significance of group discussions in various settings.	1,2

TEXT BOOKS:

T1: Barrett, Grant. 2016. Perfect English Grammar: The Indispensible Guide to Excellent Writing and Speaking, Zephyros Press.

T2: Mc Dowell, Gayle Laakmann. 2008. Cracking the Coding Interview (Indian Edition).

REFERENCE BOOKS:

R1: Communication Skills Training: A Practical Guide to Improving Your Social Intelligence, Presentation and Social Speaking, Ian Tuhovsky, 2019

R2: A Text book for AECC English Communication: Interface, Dr. Kironmoy Chetia and Pranami Bania Breez Mohan Hazarika, January2019.

OTHER LEARNING RESOURCES:

https://youtu.be/x60GHpQ8gJk

https://youtu.be/Ke_oSN-BCaY

https://youtu.be/TDPDtrLxT-c

https://www.classcentral.com/report/toefl-preparation/

RELATIONSHIP BETWEEN COURSE OUTCOMES (CO) AND PROGRAMME OUTCOMES

CO PO Mapping		
SN	**Course Outcome (CO)**	**Mapped Programme outcome**
1	Enable the students to take initiative, guide the discussion, and influence others positively.	**5,6,7**
2	Improve student's ability in framing different sentences while speaking and writing	**5,6,7**
3	Develop writing skills in different areas including paragraph and email.	**5,6**
4	Plan efficiently for discussions in different platforms by enhancing their thought process and problem-solving skill	**5,6,7**
5	Encompass personal growth, career advancement, enhanced communication, and the ability to navigate a variety of professional situations successfully	**5,6,7**

SEMESTER – II									
Course Title	**UNIVERSAL HUMAN VALUES (UHV)+ PROFESSIONAL ETHICS**								
Course code	**23UUHUV107R**	**Total credits: 1**	**L**	**T**	**P**	**S**	**R**	**O/F**	**C**
		Total hours: 15T	**1**	**0**	**0**	**0**	**0**	**0**	**1**
Pre-requisite	**Nil**	**Co-requisite**	**Nil**						
Programme	**Master of Physiotherapy**								
Semester	**Winter/ II semester of first year of the programme**								
Course Objectives	1.To understand and implement the principles, guidelines, and processes for value education to meet human aspirations and foster harmony. 2.To explore and promote harmony within the family, society, nature, and existence through ethical reasoning and decision-making. 3.To cultivate values-based leadership skills for ethical decision-making in personal and professional contexts.								
CO1	Learn and understand the Need, Guidelines, Content and Process for Value Education								
CO2	Fulfill the human aspirations like understanding and living in harmony at various levels.								
CO3	Learn and understand harmony in family and society								
CO4	Learn and understand harmony in nature and existence.								
CO5	Develop skills to promote ethical reasoning and decision-making in personal and professional contexts, fostering values-based leadership.								

Unit-No.	**Content**	**Contact Hour**	**Learning Outcome**	**KL**
I	Course Introduction - Need, Basic Guidelines, Content, and Process for Value Education, Understanding the need, basic guidelines, content, and process for Value Education is essential. Self-exploration involves examining one's own beliefs and experiences, utilizing natural acceptance and experiential validation as mechanisms. Achieving continuous happiness and prosperity involves understanding basic human aspirations. It requires comprehending the right priorities of right understanding, relationships, and physical facilities for fulfilling human aspirations. Correctly understanding happiness and prosperity is crucial for critically appraising the current scenario. Methods to fulfill these human aspirations involve understanding and living in harmony at various levels.	**3**	Students will understand the need, guidelines, content, and process for value education to achieve happiness and prosperity through self-exploration and harmony at various levels.	2,3
II	Understanding Harmony in the Human Being - Harmony in Myself Understanding the human being as a coexistence of the sentient 'I' and the material 'Body' is fundamental. The needs of the Self ('I') and the Body, namely Sukh and Suvidha, must be comprehended. The Body should be seen as an instrument of 'I,' with 'I' being the doer, seer, and enjoyer. Recognizing the characteristics and activities of 'I' and achieving harmony within 'I' is essential. Harmony with the Body involves Sanyam and Swasthya, and a correct appraisal of physical needs, defining prosperity in detail. Programs to ensure Sanyam and Swasthya through practice exercises and case studies will be conducted in practice sessions.	**3**	Students will comprehend the coexistence of 'I' and the body, ensuring personal harmony through self-awareness and the balance of physical and mental needs.	2,3,4

III	Understanding Harmony in the Family and Society - Harmony in Human-Human Relationships, Understanding harmony in the family, the basic unit of human interaction, is vital. Values in human-human relationships, such as Nyaya and the program for its fulfillment to ensure Ubhay-tripti, need to be understood. Foundational values of relationships include Trust (Vishwas) and Respect (Samman). Understanding the meaning of Vishwas and the difference between intention and competence is important. Similarly, comprehending the meaning of Samman and the difference between respect and differentiation, along with other salient values in relationships, is crucial. The harmony in society, as an extension of the family, includes goals such as Samadhan, Samridhi, Abhay, and Sah-astitva. Visualizing a universal harmonious order in society, from an undivided society (Akhand Samaj) to a universal order (Sarvabhaum Vyawastha), will be addressed through practice exercises and case studies.	**3**	Students will learn to foster trust, respect, and justice in family and societal relationships, promoting a harmonious social order.	2, 3
IV	Understanding Harmony in Nature and Existence - Whole Existence as Co-existence Understanding the harmony in nature is crucial. This includes the interconnectedness and mutual fulfillment among the four orders of nature, emphasizing recyclability and self-regulation. Comprehending existence as the co-existence (Sah-astitva) of mutually interacting units in all-pervasive space is fundamental. A holistic perception of harmony at all levels of existence will be explored through practice exercises and case studies.	**3**	Students will explore the interconnectedness and mutual fulfillment within nature and existence, developing a holistic perception of harmony.	2,3,4
V	Implications of the Above Holistic Understanding of Harmony on Professional Ethics,The natural acceptance of human values forms the basis of this unit. The definitiveness of ethical human conduct is essential for developing a basis for humanistic education, humanistic constitution, and a humanistic universal order. Competence in professional ethics includes the ability to utilize professional competence to augment the universal human order, identify people-friendly and eco-friendly production systems, and develop appropriate technologies and management patterns for these systems. Case studies of typical holistic technologies, management models, and production systems will be analyzed. Strategies for transitioning from the present state to a Universal Human Order will be discussed, focusing on socially and ecologically responsible engineers, technologists, and managers at the individual level, and mutually enriching institutions and organizations at the societal level.	**3**	Students will apply human values and ethical principles in professional contexts, supporting a humanistic universal order through sustainable practices.	4,5

TEXT BOOKS:

T1: Value Education for Young Leaders" by S.K. Kapoor
T2: The Art of Happiness" by Dalai Lama and Howard Cutler
T3: The Seven Principles for Making Marriage Work" by John Gottman
T4: The Web of Life: A New Scientific Understanding of Living Systems" by Fritjof Capra

REFERENCE BOOKS:

R1: The Responsible Company" by Yvon Chouinard and Vincent Stanley
R2: Living Values Education Program" by Diane G. Tillman
R3: Ethics for the New Millennium" by Dalai Lama

OTHER LEARNING RESOURCES:

1. Value Education websites, http://uhv.ac.in, http://www.uptu.ac.in
2. Story of Stuff, http://www.storyofstuff.com

RELATIONSHIP BETWEEN COURSE OUTCOMES (CO) AND PROGRAMME OUTCOMES

CO PO Mapping		
SN	**Course Outcome (CO)**	**Mapped Programme outcome**
1	Learn and understand the Need, Guidelines, Content and Process for Value Education	**6**
2	Fulfill the human aspirations like understanding and living in harmony at various levels.	**7**
3	Learn and understand harmony in family and society	**7,8**
4	Learn and understand harmony in nature and existence.	**8**
5	Develop skills to promote ethical reasoning and decision-making in personal and professional contexts, fostering values-based leadership.	**6,7,8**

SEMESTER – II									
Course Title	**PEDAGOGY OF PHYSIOTHERAPY EDUCATION (TECHNO PROFESSIONAL SKILL – I)**								
Course code	**23MPTO124R**	**Total credits: 2**	**L**	**T**	**P**	**S**	**R**	**O/F**	**C**
		Total hours: 60P	**0**	**0**	**4**	**0**	**0**	**0**	**2**
Pre-requisite	**Nil**	**Co-requisite**	**Nil**						
Programme	**Master of Physiotherapy**								
Semester	**Winter/ II semester of first year of the programme**								
Course Objectives	1. To grasp the significance and dynamics of teaching and learning within the context of physiotherapy, enabling students to appreciate the essential components of effective teaching and learning processes. 2. To develop the skills necessary to plan and execute effective teaching sessions specifically tailored to the field of physiotherapy, ensuring students can design engaging and impactful learning experiences for their future patients and peers. 3. Developing skills and attitudes in students, and helping them understand and apply their learning.								
CO1	Impart adequate knowledge and skill in Physiotherapy Pedagogy and learn ways of effectively teach.								
CO2	Understand recent new trends and issues regarding education. The students should be able understand the concepts of teaching and learning with curriculum formation, methods of teaching, and conduct educational seminars and microteachings using new trends in education								
CO3	Apply contemporary theories, learning and teaching in physiotherapy education through the planning, delivery and evaluation								
CO4	Develop holistic learning experiences which could be applied in the clinical practice.								
CO5	Articulate a detailed knowledge and understanding of contemporary socio cultural and national discourses influencing developments in clinical and research world**.**								

Unit-No.	**Content**	**Contact Hour**	**Learning Outcome**	**KL**
I	**Concept of Teaching and Learning** • Meaning and scope of Educational Psychology. • Meaning and Relationship between teaching and learning. • Learning Theories. • Dynamics of Behaviour. • Individual differences.	**10**	By the end of the of the unit students will be able to provide detailed information on basic knowledge about theories and behaviour dynamics	1,2
II	**Methods and Techniques of Teaching** • Lecture, Demonstration • Discussion, Seminar, Assignment, Project and Case Study.	**12**	By the end of the of the unit students will gain proper knowledge on methods and procedure of teaching	1,2, 3,4
III	**Principles of Teaching** • Bloom's taxonomy of instructional objectives, writing instructional objectives in behavioural terms. • Unit planning and Lesson planning. **Teaching Aids** • Types of teaching aids • Principles of selection, preparation and use of audio-visual aids.	**15**	By the end of the of the unit students will know about lesson planning and the concept of Bloom's taxonomy and their implementation	1,2, 3,4
IV	**Guidance and counselling** • Meaning & concepts of guidance and counselling. • Principles • Guidance and counselling services of Students and Faculty members.	**12**	By the end of the of the unit students will know about principles of patient guidance and counselling of caregivers	1,2, 3,4

V	**Clinical Education** • Awareness and guidance to the common people about health and diseases and available Professional Services. • Patient Education. **Education of the practitioners.** • Video of Teachers' Orientation Program • PPTs of Lectures and Practice Sessions • Audio-visual material for use in the practice sessions	**11**	By the end of the of the unit students will have thorough knowledge about education of patient, health and disease and its professional services imparted	1,2,3, 4,5,6

In addition, the following reference books maybe found useful for supplementary reading in connection with different parts of the course:

1. B L Bajpai, 2004, *Indian Ethos and Modern Management*, New Royal Book Co., Lucknow. Reprinted 2008.
2. P L Dhar, R R Gaur ,1990, *Science and Humanism*, Common wealth Publishers'.
3. Sussan George,1976, *How the Other Half Dies,* Penguin Press.Reprinted1986,1991
4. IvanIllich,1974,*Energy&Equity,*TheTrinityPress,Worcester,and Harper Collins, USA
5. Donella H. Meadows, Dennis L. Meadows, Jorgen Randers, William W. Behrens III, 1972, limits to Growth, Club of Rome's Report, and Universe Books. SubhasPalekar,2000,*How to practice Natural Farming,* Pracheen (Vaidik) Krishi Tantra Shodh, Amravati.
6. A Nagraj, 1998,*JeevanVidyaekParichay,*Divya Path Sansthan, Amarkantak.
7. E. F. Schumacher,1973, *Small is Beautiful: a study of economics as if people mattered*, Blond& Briggs, Britain.
8. A. N. Tripathy,2003, *Human Values*, New Age International Publishers.

Relevant websites, movies and documentaries

1. Value Education websites,http://uhv.ac.in,*http://www.uptu.ac.in*
2. Story of Stuff,*http://www.storyofstuff.com*
3. Al Gore, *An Inconvenient Truth*, Paramount Classics,USA
4. Charlie Chaplin, *Modern Times*, United Artists,USA
5. IIT Delhi, *Modern Technology–the Untold Story*

TEXT BOOKS:

T1: Pedagogy Physiotherapy Education-Ram,C S
T2: Innovative Tools for Health Education-Grechus,Marilym
T3: Developing a Pedagogy of Teacher education: Understanding teaching and learning about teaching.

REFERENCE BOOKS:

R1: Handbook of Educational Technology - Elington Henry, Kogan Page.
R2: Handbook of Clinical Teaching - Watts Nancy, Churchill Livingstone.
R3: Powerful Pedagogy: Self-Study of a Teacher Educators Practice (Self Study of Teaching and Teacher By Robyn Brandenburg
R4: Physical Therapy Administration & Management - Hickok, Robert J, Williams & Wilkins.

RELATIONSHIP BETWEEN COURSE OUTCOMES (CO) AND PROGRAMME OUTCOMES

CO PO Mapping		
SN	**Course Outcome (CO)**	**Mapped Programme outcome**
1	Impart adequate knowledge and skill in Physiotherapy Pedagogy and learn ways of effectively teach.	**1,2,3,4,5,6,7,8**
2	Understand recent new trends and issues regarding education. The students should be able understand the concepts of teaching and learning with curriculum formation, methods of teaching, and conduct educational seminars and microteachings using new trends in education	**1,2,3,4,5,6,7,8**
3	Apply contemporary theories, learning and teaching in physiotherapy education through the planning, delivery and evaluation	**1,2,3,4,5,6,7,8**
4	Develop holistic learning experiences which could be applied in the clinical practice.	**1,2,3,4,5,6,7,8**
5	Articulate a detailed knowledge and understanding of contemporary socio cultural and national discourses influencing developments in clinical and research world**.**	**1,2,3,4,5,6,7,8**

SEMESTER – II									
Course Title	**MINI-RESEARCH (RESEARCH GAP ANALYSIS- R2)**								
Course code	**23MPTO125R**	**Total Credits: 2**	**L**	**T**	**P**	**S**	**R**	**O/F**	**C**
		Total Hours:150	**0**	**0**	**0**	**4**	**6**	**0**	**2**
Pre-Requisite	Nil	**Co-Requisite**	Nil						
Programme	**Master of Physiotherapy**								
Semester	**Winter/ II semester of first year of the programme**								
Course Objectives	1.To determine whether the objectives of review of literature gap analysis have been met, if not what steps can be taken accordingly. 2.To apply theoretical knowledge from their studies to a practical problem. 3.Develop essential research skills like data collection, analysis, and interpretation, while gaining exposure to the research process.								
CO1	Create and implement a plan to bridge the gap								
CO2	Find the gap and evaluate solutions.								
CO3	Identify the ideal future state/action plan								
CO4	To analyse the current state/work of research								
CO5	To implement the strategies to meet the research gap under supervision.								

Unit-No.	**Content**	**Contact Hour**	**Learning Outcome**	**KL**
I	What is literature review?	**30**	Identify literary techniques and creative uses of language in literary texts. Adapt their texts to particular audiences and purposes.	1,2
II	How to Begin the literature Review	**30**	Adapt their texts to particular audiences and purposes.	1,2, 3,4
III	How to write main body of literature review	**30**	The students will learn about the importance of ethical consideration in research writing	1,2, 3,4
IV	How to write conclusion of literature Review	**30**	The students will be able to select one of the major key concepts and variables from the chosen research topic.	1,2, 3,4
V	How to analyse gap in literature review.	**30**	The students will get practical exposure in writing research papers in proper APA format and styles.	1,2, 3,4, 5,6

TEXT BOOKS:

T1: Multiple Stressors: Literature Review and Gap Analysis (WERF Research Report Series) by S.M. Swanson.

RELATIONSHIP BETWEEN COURSE OUTCOMES (CO) AND PROGRAMME OUTCOMES

CO PO Mapping		
SN	**Course Outcome (CO)**	**Mapped Programme outcome**
1	Create and implement a plan to bridge the gap	**1,2,3,4,5,6,7,8**
2	Find the gap and evaluate solutions.	**1,2,3,4,5,6,7,8**
3	Identify the ideal future state/action plan	**1,2,3,4,5,6,7,8**
4	To analyse the current state/work of research	**1,2,3,4,5,6,7,8**
5	To implement the strategies to meet the research gap under supervision.	**1,2,3,4,5,6,7,8**

SEMESTER – III									
Course Title	**PHYSIOTHERAPEUTICS**								
Course code	**23MPTO211R**	**Total Credits: 6**	**L**	**T**	**P**	**S**	**R**	**O/F**	**C**
		Total Hours: 45T+90P	**3**	**0**	**6**	**0**	**0**	**0**	**6**
Pre-requisite	Human Anatomy, Human Physiology, Biomechanics of Human Motion, Exercises therapy, Electrotherapy	**Co-Requisite**	Elective Neurological and Psychosomatic Disorders, Elective Musculoskeletal Disorders and Sports, Elective Cardio-Respiratory Disorders, Elective Paediatrics						
Programme	**Master of Physiotherapy**								
Semester	**Fall/ III semester of the second year of the programme**								
Course Objectives	1. Introduce the students to the concepts related Pain: Neurobiology, Use of Exercise therapy techniques, electrotherapy and application on various types of cases. 2. Introduce the students to use Physiotherapy and other therapy methods Following Obstetric and Gynaecological Disorders. 3. This paper shall focus on recent advances of the clinical conditions including its assessment and management with emphasis on Physiotherapy context, however due importance shall also be given for advances in Anatomy and Physiology.								
CO1	Apply recent advances of the clinical conditions including its assessment and management with emphasis on Physiotherapy context, however due importance shall also be given for advances in Anatomy and Physiology.								
CO2	Apply exercise therapy techniques and application on various types of cases, Application of electrotherapy techniques on patients,								
CO3	Impart the knowledge on General Guidelines to be followed in Cardiac Rehabilitation, Pulmonary Rehabilitation.								
CO4	Acquainted with the Knowledge on General Guidelines to be followed in Burns Rehabilitation and Cancer Rehabilitation Protocol.								
CO5	Use Physiotherapy and other therapy methods Following Obstetric and Gynaecological Disorders.								

Unit-No.	**Content**	**Contact Hour**	**Learning Outcome**	**KL**
I	Pain (neurobiology, various theories, modulation and management of pain), Use of Exercise therapy techniques and application on various types of cases, Application of electrotherapy techniques on patients, monitoring of dosages and winding up procedure, Ergonomic aspects of exercise on oxygen, energy consumption MET value of various exercises and activity	10	The students will have knowledge: • About Neurobiology of pain, pain management. • To use exercises therapy technique, electrotherapy in different cases.	1,2

II	Maternal and child care in general physiotherapy, Physiotherapy Following Obstetric and Gynaecological Disorders, Yoga: Concept of Yogic Practices – Bandha, Dhyana. Asana: Definition, Scope and Limitations of Asanas – Classification of Asanas –Safety, Measures and Precautions while performing Asanas, Pranayama: Meaning – Different Phases in Pranayama Practice Safety Measures and Precautions. Meaning & benefits of Bandha – Different Bandhas. Meaning of Mudra – Types of Mudra, Practicing methods and benefits of Kriyas – Meaning – Types of Kriyas; Neti; Dhauthi. Meaning & concept of Meditation – Yogic practices and physical exercise. Yoga Practices and Other Systems of Exercises – Asanas Vs. Muscular Exercises – Pranayama Vs. Deep, Breathing Exercises – Importance of Nerve Culture in Yoga - Yoga and Competition – Yoga and Modern Education.	15	The students will have knowledge: • Maternal and child care. • The concept of Yogic Practices.	1,2,3, 4
III	Cardiopulmonary medications and their effect on activity performance, Exercise planning and prescription, Effect of aerobic, anaerobic as well as Isometric and Isokinetic exercises on cardiac function, CPR, monitoring systems and defibrillators.	10	The students will have knowledge: • Exercise planning and prescription. • Effect of aerobic, anaerobic as well as Isometric and Isokinetic exercises on cardiac function.	1,2, 3,4
IV	Artificial respirators, General Guidelines to be followed in Cardiac Rehabilitation, Pulmonary Rehabilitation, Burns Rehabilitation and Cancer Rehabilitation Protocol.	5	The students will have knowledge: • About Artificial respirators. • Cardiac Rehabilitation, Pulmonary Rehabilitation, Burns Rehabilitation and Cancer Rehabilitation Protocol.	1,2, 3,4
V	Massage, Mobilization and Manipulation, Manual therapy – different schools of thought Principles of Neurological approaches, Facilitation and inhibition techniques	5	The students will have knowledge: • About Massage, Mobilization, Manual therapy. • Neurological approaches, Facilitation and inhibition techniques.	1,2,3, 4,5,6

Practical	Evaluate and analyses the physiological aspects of physical rehabilitation. Clinical decision and plan for effective treatment. Identify and recognize the importance of monitoring vital signs. Plan strategies for management of various musculoskeletal, neurological, cardio pulmonary problems and in various medical and surgical conditions.	90	Student will develop strategies for managing various musculoskeletal, neurological, and cardiopulmonary problems, as well as addressing different medical and surgical conditions. This comprehensive approach aims to enhance the efficacy of rehabilitation programs, ensuring holistic patient care and improved health outcomes.	

TEXT BOOKS:

T1: Cash's Textbook for physiotherapist in Neurological disorders-Jaypee bros.
T2: Proprioceptive Neuron muscular Facilitation – by Herman Karat.
T3: Practical Physical Therapy – Margaret Hollis.

REFERENCE BOOKS:

R1: Therapeutic exercise – by O'Sullivan.
R2: "Right in the middle" – by Patricia Davis.
R3: Stroke rehabilitation – by Margaret Johnson.

RELATIONSHIP BETWEEN COURSE OUTCOMES (CO) AND PROGRAMME OUTCOMES

CO PO Mapping		
SN	**Course Outcome (CO)**	**Mapped Programme outcome**
1	Apply recent advances of the clinical conditions including its assessment and management with emphasis on Physiotherapy context, however due importance shall also be given for advances in Anatomy and Physiology.	**1,2,3,4,5,6,7,8**
2	Apply exercise therapy techniques and application on various types of cases, Application of electrotherapy techniques on patients,	**1,2,3,4,5,6,7,8**
3	Impart the knowledge on General Guidelines to be followed in Cardiac Rehabilitation, Pulmonary Rehabilitation.	**1,2,3,4,5,6,7,8**
4	Acquainted with the Knowledge on General Guidelines to be followed in Burns Rehabilitation and Cancer Rehabilitation Protocol.	**1,2,3,4,5,6,7,8**
5	Use Physiotherapy and other therapy methods Following Obstetric and Gynaecological Disorders.	**1,2,3,4,5,6,7,8**

SEMESTER – III										
Course Title	**ELECTIVE: MUSCULOSKELETAL DISORDERS AND SPORTS**									
Course Code	**23MPTO212R**	**Total Credits: 6**	**L**	**T**	**P**	**S**	**R**	**O/F**	**C**
		Total Hours: 45T+90P	**3**	**0**	**6**	**0**	**0**	**0**	**6**
Pre-Requisite	**Anatomy, Clinical Orthopaedics and Traumatology, Physiotherapy in Orthopaedics and Traumatology**	**Co-Requisite**	Nil						
Programme	**Master Of Physiotherapy**								
Semester	**Fall/ III semester of the second year of the programme**								
Course Objectives	1. Will be able to identify, discuss and analyse the musculoskeletal dysfunction in terms of biomechanical, kinesiological and biophysical basis. 2. Will use the anatomical rationale for clinical tests used in differential diagnosis. 3.Learn to assess, diagnose, and manage musculoskeletal conditions and injuries in athletes and other patients.									
CO1	Perform an appropriate subjective and physical examination, with development of suitable analytical skills to evaluate data obtained.									
CO2	Recognize the implication of dysfunction on the Neuro- Musculoskeletal system and the student's clinical decision making.									
CO3	Choose the scale, outcome measures and asses the progression.									
CO4	Develop clinical reasoning that incorporates theoretical concept with evidence-based practice in the field of musculoskeletal physiotherapy.									
CO5	Co-relate the Biomechanical, Kinesiological and Biophysical basis with the provisional diagnosis, routine radiological & Electro-physiological investigations and arrive at appropriate functional diagnosis with clinical reasoning.									

Unit-No.	**Content**	**Contact Hour**	**Learning Outcome**	**KL**
I	Applied anatomy with emphasis on Biomechanics & Kinesiology of Human motion and Work Physiology. Clinical assessment and rationale of Laboratory investigations along with differential diagnoses. Clinical Symptomatology, Pathophysiology and Path mechanics of musculoskeletal conditions.	**5**	Students will be able to apply the anatomical and biomechanical knowledge to do the clinical assessment and the investigations.	1,2
II	Physiotherapy management following fractures, dislocations and their complications, Amputations, cumulative trauma disorders and Burns. Physiotherapy management in degenerative disorders and allied conditions. Physiotherapy in post operative management of metabolic, hormonal, neoplastic and infective conditions of bones and joints. Physiotherapy following arthroplasty, implants and soft tissue repairs.	**10**	At the end the students will be able to plan the physiotherapeutic management for different disorders and the surgical methods in orthopaedics.	1,2, 3,4

III	Pre &post-operative physiotherapy in tendon transfer. Electrical stimulation and biofeedback procedures. Kinetic and kinematics analysis for various functional activities. Functional assessment (Hand function, Gait, Posture A.D.L; occupational work).	**10**	The students will be able to rule out the pre- and post-operative physiotherapeutic management, functional assessment of hand function, gait, posture, ADLs	1,2,3,4
IV	Hand Rehabilitation. Assessment of locomotor impairments, disabilities and disability evaluation.	**5**	Able to understand the hand rehabilitation and the assessment of locomotor impairments and disabilities evaluation.	1,2,3, 4,5,6
V	Physiotherapy management of locomotor disorder, principles of medical and surgical aspects, sports psychology and retraining. Neurological complications of locomotor disorders.	**15**	The students will be able to plan the physiotherapy management of locomotor disorder its principles and surgical aspects, sports psychology and retraining.	1,2,3, 4,5,6
Practical	Techniques for rehabilitation, managing complications, and ensuring optimal recovery. Strategies for managing amputations and repetitive strain injuries, including pain management and functional training. Management techniques for conditions like osteoarthritis and related disorders. Methods for evaluating hand function, gait, posture, ADLs, and occupational tasks. Assessment and management of locomotor disabilities, including medical, surgical, and sports psychology aspects. Rehabilitation protocols following joint replacements, implants, and soft tissue surgeries.	**90**	These practical skills will equip students with comprehensive knowledge and hands-on experience in various aspects of physiotherapy, ensuring they are well-prepared to manage a wide range of conditions effectively.	

TEXT BOOKS:

T1: Jack H Wilmore , David L Costill : Physiology of Sports & Exercise 6rd Ed
T2: Apley & Soloman : Apley's System of Orthopedics & Fracture 1998/ 9th Ed
T3: Norkin, Cynthia C White, D Joyce : Measurement of Joint Motion 5th ed
T4: Margaret, Nordin : Basic Biomechanics of the Musculoskeletal System 2001/ 3rd Ed
T5: Jonathan K. Ehrman, Paul M. Gordon: Clinical Exercise Physiology 3rd ed

REFERENCE BOOKS:

R1: Physiotherapy in Orthopaedics -Fiona Coutts
R2: Peggy A. Houglum , Dolores B. Bertoti : Brainstorm's: Clinical Kinesiology 1998/6th Ed
R3: Stephen L Demeter , Gunnar B J Anderson, george b j smith : Disability Evaluation 1996
R4: David H Perrin : Athletic Taping & Bracing 3rd ed
R5: Craik, Rebecall : Gait's Analysis 1994/ 1st Ed
R6: Gabriel Stux Bruce Pomeranz : Basics of Acupuncture 3rd revised and enlarged edition

OTHER LEARNING RESOURCES:

1. Physical Therapy (APTA, America)
2. Physiotherapy (CSP London)
3. American Journal Of Physical Medicine And Rehabilitation.
4. Physiotherapy (Canada)
5. Physiotherapy Theory And Practice.
6. Australian Journal Of Physiotherapy
7. Journal Of Indian Association Of Physiotherapy
8. Clinical Kinesiology
9. Journal Of Biomechanics
10. American Journal Of Sports Exercises.
11. Pediatric Physical Therapy.
12. Journal Of Rehabilitation Research And Development.

RELATIONSHIP BETWEEN COURSE OUTCOMES (CO) AND PROGRAMME OUTCOMES

CO PO Mapping		
SN	**Course Outcome (CO)**	**Mapped Programme outcome**
1	Perform an appropriate subjective and physical examination, with development of suitable analytical skills to evaluate data obtained.	**1,2,3,4,5,6,7,8**
2	Recognize the implication of dysfunction on the Neuro-Musculoskeletal system and the student's clinical decision making.	**1,2,3,4,5,6,7,8**
3	Choose the scale, out come measures and asses the progression.	**1,2,3,4,5,6,7,8**
4	Develop clinical reasoning that incorporates theoretical concept with evidence-based practice in the field of musculoskeletal physiotherapy.	**1,2,3,4,5,6,7,8**
5	Co-relate the Biomechanical, Kinesiological and Biophysical basis with the provisional diagnosis, routine radiological & Electro-physiological investigations and arrive at appropriate functional diagnosis with clinical reasoning.	**1,2,3,4,5,6,7,8**

SEMESTER – III									
Course Title	**ELECTIVE: NEUROLOGICAL AND PSYCHOSOMATIC DISORDERS**								
Course code	**23MPTO213R**	**Total Credits: 6**	**L**	**T**	**P**	**S**	**R**	**O/F**	**C**
		Total Hours: 45T+90P	**3**	**0**	**6**	**0**	**0**	**0**	**6**
Pre-requisite	Neuroanatomy, Physiology, Clinical Neurology &Neurosurgery Neurological Conditions	**CO-REQUISITE**	Nil						
Programme	**Master of Physiotherapy**								
Semester	**Fall/ III semester of the second year of the programme**								
Course Objectives	1. Reliable to rationalise the treatment approach according to the management needed (Medical/Surgical and to apply appropriate techniques. 2. Compare the effect and efficacy of various approaches/techniques for research purposes. 3. Students should be able to demonstrate awareness of the use and interpretation of common tests used in diagnosing neurologic disease and apply the principles underlying a systematic approach to the management of common neurologic diseases (including the recognition and management of situations that are potential emergencies								
CO1	Apply the scale, out come measures and asses the progression.								
CO2	Apply recent technique/ approaches to treat & train patients with Neurological deficit in children, adults & Geriatrics.								
CO3	Impart knowledge for training the under graduate students.								
CO4	Apply the principles of application of different methods of electro diagnosis, radiology and interpret them in neurological conditions								
CO5	Analyze the concepts of clinical conditions, neurological assessment, various outcome measures, Autonomic dysfunction assessment and paediatric assessment and diagnosis in the physiotherapy management based on Evidence Based Practice for neurological disorders.								

Unit-No.	**Content**	**Contact Hour**	**Learning Outcome**	**KL**
I	Anatomy and Physiology of Nervous System, Normal sequential behavioural and Physiological changes throughout the developmental arc, Neurophysiology of balance, coordination and locomotion, Clinical symptomatology and Pathophysiology of the neurological disorders, Principles of clinical neuron diagnosis and investigation, Electro diagnosis:	**9**	The student will be able to learn about the anatomy and physiology of the Nervous system and other pathophysiology of neurological disorders	1,2, 3
II	Neurophysiology of Nerve conduction studies and Electromyography, Instrumentation of Electrical stimulator, EMG, SFEMG, NCS (Nerve Conduction Studies), Electrical study of reflexes (H- reflex, Axon reflex, F-response, Blink reflex, Jaw jerk, Tonic Vibration Reflex), Repetitive nerve stimulation, Remembering, understanding, applying, analyzing, evaluating, creating Evoked potentials (SSEP, MEP, BAERA, and VER), Interpretation of neurophysiologic responses in Neuropathy, myopathy and neuromuscular disorders, Medical and Physiotherapy management following Cerebrovascular accidents	**9**	To learn and explore about the neurophysiology of nerve conduction studies and its application and interpretation in various physiotherapy treatment	1,2, 3,4

III	Various Evaluation Scales and Assessment methods used in neurological rehabilitation, Evaluation of A.N.S dysfunction with reference to psycho-physiological testing. Biofeedback Training Neuron-psychological functions. Perception testing and training, Traumatic Brain Injury. (ICU management, Coma stimulation, Restoration of motor control, Rehabilitation and community integration)	**9**	To learn and gather knowledge about the evaluation scales and other assessment methods related to rehabilitation	1,2, 3,4
IV	Theories of motor control and theories of motor learning, its application in physiotherapy. Common facilitator and inhibitory techniques. Treatment approaches in neurological rehabilitation: Bobath, NDT, SI, Brunnstrom, Roods,PNF, Vojta, MRP, MFR.	**9**	To understand the concepts, theories and approaches related to neurological treatment	1,2, 3,4, 5,6
V	Musculoskeletal treatment concept applied to neurology: Adverse neural tissue tension tests in upper limb and lower limb. Traumatic spinal cord injuries. (ICU management, Coma stimulation, Restoration of motor control, Rehabilitation and community integration) Physical therapy management of demyelinating, inflammatory, infectious, degenerative and metabolic diseases of the nervous system, Pathophysiology and Management of tonal abnormalities (Spasticity, Rigidity, Hypotonia, and Dystonia)	**9**	To understand the concepts of physical therapy treatment related to various neurological disorders	1,2, 3,4, 5,6
Practical	Following are the topics to be included Review of General assessment, Assessment of Tone, flexibility, tightness Assessment of Higher mental functions Neurodevelopment assessment, Pain assessment, Sensory assessment, Motor Control assessment, Postural assessment, Balance and. Coordination assessment, Reflex Testing, Clinical Gait assessment Functional assessment, Uses and application of neurological approaches and special test.	**90**	These outcomes will ensure students are well-equipped with the skills necessary for comprehensive patient evaluation and effective physiotherapy management.	

TEXT BOOKS:

T1: Human neuroanatomy – Carpenter M.B, Williams & Wilkins, Baltimore, 1983
T2: Physical therapy Assessment in Early Infancy –Wilhelm Churchill Liningstone, New York, 1993
T3: Elements of paediatric physiotherapy- Eckerley P, Churchill Liningstone, Edingburgh, 1993
T4: The Growth chart – WHO, Geneva, 1986
T5: Orthotics in neurological rehabilitation – Aisen, Demos Publication, New York 1992
T6: Manual of nerve condition velocity techniques – De Lisa, Raven press, New York, 1982
T7: Physical rehabilitation: assessment and treatment – O'Sullivan, F.A Davis, Philadelphia 1994.
T8: Neuro-rehabilitation – Farber, W.B Saunders, Philadelphia 1982
T9: Gaits analysis – Perry J., Black Thorofare, New Jersy, 199
T10: The neural basis of motor control – Black I, Churchill Livingstone, London-1987

REFERENCE BOOKS:

R1: Physical therapy management of Parkinson's disease – Turnbull Gerode , Churchill,
R2: Abnormal postural reflex activity caused by Brain lesions – Bobath b. Aspen publications, Rockville, 1897.
R3: Disorders of voluntary muscle- Eagel, Churchill, Livingstone, Edingburgh 1988.
R4: A Clinician's view of neuro muscle disorder – Brook M.H Williams and Wilkins, Baltimore 1986.
R5: Proprioception, neuro muscular facilitation techniques – Knot M. and Voss, Harper and Row, New York 1972 2nd edition.
R6: Stroke rehabilitation – Laidler, Capman and Hall, London 1994.
R7: Motor relearning programme for stroke – Carr, Aspen publication, Rock ville, 1987.
R8: Adult hemiplegia: evaluation and treatment – Bobath B, Heinmann, London 1988.
R9: Paraplegia and tetraplegia – Brombley, Churchill, Livingstone, Edingburgh 1991
R10: Child with spina Bifida – Anderson E.M. and Spain B., Methun, London 1977.

OTHER LEARNING RESOURCES:

REFERENCE JOURNAL

1. Physical Therapy (APTA, America)
2. Physiotherapy (CSP London)
3. American Journal Of Physical Medicine And Rehabilitation.
4. Physiotherapy (Canada)
5. Physiotherapy Theory And Practice.
6. Australian Journal Of Physiotherapy
7. Journal Of Indian Association Of Physiotherapy
8. Clinical Kinesiology
9. Journal Of Biomechanics
10. American Journal Of Sports Exercises.
11. Pediatric Physical Therapy.
12. Journal Of Neurologic Physical Therapy.
13. Journal Of Rehabilitation Research And Development.
14. Journal of Cardio Pulmonary Rehabilitation.
15. Archives Of Physical Medicine And Rehabilitation.

RELATIONSHIP BETWEEN COURSE OUTCOMES (CO) AND PROGRAMME OUTCOMES

CO PO Mapping		
SN	**Course Outcome (CO)**	**Mapped Programme outcome**
1	Apply the scale, out come measures and asses the progression.	**1,2,3,4,5,6,7,8**
2	Apply recent technique/ approaches to treat & train patients with Neurological deficit in children, adults & Geriatrics.	**1,2,3,4,5,6,7,8**
3	Impart knowledge for training the under graduate students.	**1,2,3,4,5,6,7,8**
4	Apply the principles of application of different methods of electro diagnosis, radiology and interpret them in neurological conditions	**1,2,3,4,5,6,7,8**
5	Analyze the concepts of clinical conditions, neurological assessment, various outcome measures, Autonomic dysfunction assessment and pediatric assessment and diagnosis in the physiotherapy management based on Evidence Based Practice for neurological disorders.	**1,2,3,4,5,6,7,8**

SEMESTER – III									
Course Title	**ELECTIVE (CARDIO-RESPIRATORY DISORDERS)**								
Course code	**23MPTO214R**	**Total Credits: 6**	**L**	**T**	**P**	**S**	**R**	**O/F**	**C**
		Total Hours: 45T+90P	**3**	**0**	**6**	**0**	**0**	**0**	**6**
Pre-Requisite	Neuroanatomy, Physiology	**Co-Requisite**	Nil						
Programme	**Master of Physiotherapy**								
Semester	**Fall/ III semester of the second year of the programme**								
Course Objectives	1. Introduce the students to the concepts related Anatomy and physiology of cardio-vascular and respiratory, Systems, Biomechanics of respiration, Intrauterine development of cardio pulmonary system, and difference between the adult and paediatric, cardio pulmonary system 2. At the end of session, a student has to demonstrate soft skills in assessment and management of various cardio respiratory disorders. 3. Learn about the epidemiology, pathology and aetiology of cardio-respiratory diseases.								
CO1	Identify, discuss &analyze cardio-vascular & pulmonary dysfunction, based on Patho-physiological principles, & arrive at the appropriate functional diagnosis								
CO2	Acquire knowledge of rationale of basic investigative approaches in the medical system, surgical intervention regimes related to cardio-vascular & pulmonary impairment.								
CO3	Acquire the skill of evaluation & interpretation of functional capacity, using simple exercise tolerance tests, such as 6 minutes walk test, symptom limited test.								
CO4	Select strategies for cure, care & prevention; adopt restorative & rehabilitative measures for maximum possible functional independence of a patient at home, work place &in community.								
CO5	Execute the effective Physio Therapeutic measures [with appropriate clinical reasoning] with special emphasis to Breathing retraining, nebulization, humidification, bronchial hygiene, General mobilization, & Exercise conditioning.								

Unit-No.	**Content**	**Contact Hour**	**Learning Outcome**	**KL**
I	Anatomy and physiology of cardio-vascular and respiratory systems. Biomechanics of respiration, Intrauterine development of cardio pulmonary system and difference between the adult and paediatric Cardio pulmonary system.	**5**	To explore, learn and approach of anatomy, physiology and Biomechanics in relation to cardiovascular and pulmonary disorders.	1,2,3
II	Epidemiology, Symptomatology and pathophysiology of the cardio-respiratory disorders. Clinical assessment, rationale of laboratory investigations and Differential diagnosis, Evaluation of respiratory dysfunctions, Lung function tests– volumetric, Analysis of blood gases, X-ray chest. Evaluation cardiac dysfunction.[ECG, exercise ECG testing, Holter monitoring etc, Echo-cardiogram, X-Ray, Imaging techniques]	**10**	To explore and learn in dept knowledge about epidemiology, symptomology, pathology and its clinical implications to assessment and diagnosing of cardiovascular and pulmonary disorders**.**	1,2,3,4

III	Evaluation of peripheral vascular disorders: clinical, Blood flow studies, temperature plethysmography. A.N. S dysfunction testing. Risk factors and preventive measures in cardio respiratory conditions Cardio-respiratory emergencies and management principles – medication, Critical care, indications of surgical intervention, Stabilization of vital functions defibrillation.	**10**	To understand and application of clinical assessment tools like ECG,Chest X ray ,ABG analysis etc utilised in cardiopulmonary and vascular disorders.	1,2, 3,4
IV	Intensive care unit–Concept and set-up, equipment for advanced methods of resuscitation, Monitoring and patient management: Artificial airways, ventilators pulse–oxymetry etc. Oxygen therapy	**10**	1. Aquire Knowledge about concepts, principles, drugs, surgical procedures and risk factors of cardio respiratory Emergencies. 2. To learn in-depth knowledge and application of various basic and fundamental methods of monitoring, Resuscitation in ICU set up.	1,2,3, 4,5,6
V	Cardio-pulmonary resuscitation Respiratory physiotherapy techniques– Techniques to improve lung volume; techniques reduce the work of breathing and techniques to clear secretions	**10**	1. To understand clinical application of oxygen therapy in management of cardiopulmonary disorders. 2.To learn and application of cardiopulmonary resuscitation 3. To understand and application of various bronchial hygiene techniques in in relieving symptoms like breathless, accumulations of secretions, decreased lung expansion etc. in Cardiopulmonary disorders	1,2,3, 4,5,6
Practical	Proficiency in evaluating respiratory dysfunction using lung function tests, blood gas analysis, and chest X-rays. Techniques for assessing cardiac function through ECG, exercise testing, Holter monitoring, echocardiograms, and imaging. Knowledge of critical care procedures, indications for surgical intervention, and stabilization of vital functions, including defibrillation. Competence in managing artificial airways, ventilators, and pulse oximetry. Techniques to improve lung volume, reduce work of breathing, and clear secretions.	**90**		

TEXT BOOKS:

T1: Disease & Drug Consult: Respiratory Disorders by Lippincott, Wolters Kluwer | Lippincott Williams & Wilkins.

T2: Chest Physical Therapy by Dona Fon Felter

REFERENCE BOOKS:

R1: Cardiorespiratory Physiotherapy Adults And Paediatrics 5Th Edition by Eleanor Main and Linda Denehy, ELSEVIER.

OTHER LEARNING RESOURCES: E-lectures, Seminars, Journals, Webinars

1. Physical Therapy (APTA, America)
2. Physiotherapy (CSP, London)
3. American Journal of Physical Medicine & Rehabilitation
4. Physiotherapy (Canada)
5. Australian Journal Of Physiotherapy
6. Journal of Indian Association of Physiotherapy

RELATIONSHIP BETWEEN COURSE OUTCOMES (CO) AND PROGRAMME OUTCOMES

CO PO Mapping		
SN	**Course Outcome (CO)**	**Mapped Programme outcome**
1	Identify, discuss &analyze cardio-vascular & pulmonary dysfunction, based on Patho-physiological principles, & arrive at the appropriate functional diagnosis	**1,2,3,4,5,6,7,8**
2	Acquire knowledge of rationale of basic investigative approaches in the medical system, surgical intervention regimes related to cardio-vascular & pulmonary impairment.	**1,2,3,4,5,6,7,8**
3	Acquire the skill of evaluation & interpretation of functional capacity, using simple exercise tolerance tests, such as 6 minutes walk test, symptom limited test.	**1,2,3,4,5,6,7,8**
4	Select strategies for cure, care & prevention; adopt restorative & rehabilitative measures for maximum possible functional independence of a patient at home, work place &in community.	**1,2,3,4,5,6,7,8**
5	Execute the effective Physio Therapeutic measures [with appropriate clinical reasoning] with special emphasis to Breathing retraining, nebulization, humidification, bronchial hygiene, General mobilization, & Exercise conditioning.	**1,2,3,4,5,6,7,8**

SEMESTER – III									
Course Title	**ELECTIVE: PAEDIATRICS**								
Course code	**23MPTO215R**	**Total Credits: 6**	**L**	**T**	**P**	**S**	**R**	**O/F**	**C**
		Total Hours: 45T+90P	**3**	**0**	**6**	**0**	**0**	**0**	**6**
Pre-requisite	Neuroanatomy, Physiology	**Co-Requisite**	Nil						
Programme	**Master of Physiotherapy**								
Semester	**Fall/ III semester of the second year of the programme**								
Course Objectives	1. To introduce the students to the concepts of normal motor growth and development, emphasis on reflex maturation. 2. To introduction the students to various systems of the body 3. To introduce to the students should have thorough knowledge about, developmental screening, principles of laboratory investigations, Growth and development, assessment of progressive locomotor disorders.								
CO1	Acquainted the students to be able asses and diagnose all possible findings on the patient to plan a Rehabilitation programme.								
CO2	Plan out the documentation of patients with scale, outcome measures, electro diagnostic procedures and asses the progression.								
CO3	Carryout the recent technique/ approaches to treat & train children with Neurological, Orthopaedic & Cardio respiratory deficit, and be able to impart knowledge for training the under graduate students								
CO4	Describe the importance to rehabilitate high risk infants								
CO5	Acquainted the students to be able asses and diagnose all possible findings on the patient to plan a Rehabilitation programme.								

Unit-No.	**Content**	**Contact Hour**	**Learning Outcome**	**KL**
I	Normal motor development (development during Prenatal Infancy, and childhood) Reflex maturation. Developmental assessment and diagnosis.	**5**	By the end of the of the unit students will be able to provide detailed information on normal motor development, reflex development, Assessment and diagnosis	1,2,3
II	Developmental screening using various scales. Genetic basis of paediatric disorders. Embryology & genetic counselling. Cardio-respiratory assessment of neonate and infant and related Paediatric disorder	**10**	By the end of the of the unit students will gain proper knowledge on screening, genetics and cardio-respiratory assessment	1,2,3,4
III	Principles of laboratory investigations for differential diagnosis. Clinical symptomatology and patho-physiology of locomotor and cardio pulmonary disorders.	**5**	By the end of the of the unit students will know about the differential diagnosis and symptoms and pathophysiology of cardiopulmonary disorders	1,2,3,4
IV	Growth and development of a child and its disorders Maturational, Pathophysiological and recovery processing the CNS.	**10**	By the end of the of the unit students will know about the standard growth and development of children, giving emphasis on the CNS	1,2,3, 4,5,6

V	Assessment of progressive locomotor disorders–Neuropathic and Myopathic. Early intervention- high risk babies, Neonatal care and management	**15**	By the end of the of the unit students will have thorough knowledge regarding the assessment and management of neuropathic and myopathic conditions, also giving emphasis on high-risk babies	1,2,3, 4,5,6
Practical	Understanding the stages of motor development from prenatal infancy to childhood. Identifying and assessing reflex development and maturation. Skills in diagnosing developmental milestones and delays. Proficiency in using various scales for developmental screening. Evaluating and diagnosing neuropathic and myopathic locomotor disorders. Strategies for early intervention and management of high-risk babies and neonatal care.	**90**	These practical skills will enable students to effectively assess and manage developmental issues, ensuring early and accurate intervention for better health outcomes.	

TEXT BOOKS:

T1: Physical therapy Research- Domholdt, W.B Saunders, Philadelphia. 1993
T2: Human neuroanatomy – Carpenter M.B, Williams & Wilkins, Baltimore, 1983
T3: Physical therapy Assessment in Early Infancy –Wilhelm Churchill Liningstone, New York, 1993
T4: Physical therapy for children – Campbell Suzann K, W.B Saunders, Philadelphia 1994
T5: Physical management of Multiple Handicapped – Freser, William & Wilkins, Baltimore.
T6: Elements of paediatric physiotherapy- Eckerley P, Churchill Liningstone, Edingburgh, 1993
T7: Physiotherapy in pediatrics – Shepherd R. Heinmann, London, 1980 2nd edition
T8: The Growth chart – WHO, Geneva, 1986

REFERENCE BOOKS:

R1: Orthotics in neurological rehabilitation – Aisen, Demos Publication, New York 1992
R2: Electrodiagnosis in diseases of nerve and muscle – Kimura J, F.A Davis, Philadelphia.
R3: Physical rehabilitation: assessment and treatment – O'Sullivan, F.A Davis, Philadelphia 1994.
R4: The neural basis of motor control – Black I, Churchill Livingstone, London-1987
R5: Motor relearning programme for stroke – Carr, Aspen publication, Rock ville, 1987.
R6: Child with spina Bifida – Anderson E.M. and Spain B., Methun, London 1977.
R7: A manual of neonatal intensive care – Robert N.R.C, Edward Arnold, London 1986
R8: Measurement in physical therapy – Churchill, Livingstone, London 1988.

RELATIONSHIP BETWEEN COURSE OUTCOMES (CO) AND PROGRAMME OUTCOMES

CO PO Mapping		
SN	**Course Outcome (CO)**	**Mapped Programme outcome**
1	Acquainted the students to be able assess and diagnose all possible findings on the patient to plan a Rehabilitation programme.	**1,2,3,4,5,6,7,8**
2	Plan out the documentation of patients with scale, outcome measures, electro diagnostic procedures and assess the progression.	**1,2,3,4,5,6,7,8**
3	Carry out the recent technique/ approaches to treat & train children with Neurological, Orthopaedic & Cardio respiratory deficit, and be able to impart knowledge for training the under graduate students	**1,2,3,4,5,6,7,8**
4	Describe the importance to rehabilitate high risk infants	**1,2,3,4,5,6,7,8**
5	Acquainted the students to be able asses and diagnose all possible findings on the patient to plan a Rehabilitation programme.	**1,2,3,4,5,6,7,8**

SEMESTER – III									
Course Title	**CORPORATE COMPETENCY**								
Course code	**23UMPD212R**	**Total credits: 2**	**L**	**T**	**P**	**S**	**R**	**O/F**	**C**
		Total hours: 60P	**0**	**0**	**4**	**0**	**0**	**0**	**2**
Pre-requisite	**Nil**	**Co-requisite**	**Nil**						
Programme	**Master of Physiotherapy**								
Semester	**Fall/ III semester of the second year of the programme**								
Course Objectives	1. To acquaint students with the various tools of an effective presentation. 2. To acquire the speaking skill to instruct, influence, engage, educate, or appease the listeners. 3. To increase proficiency and quality of resume and provide guidance for self-promotion and self-evaluation in social media. 4. To prepare and train the students for the campus drives& walk-in interviews								
CO1	Prepare the learners to speak with greater control and charisma in front of others.								
CO2	Learn how to have a positive impact on their thought process and problem-solving skills.								
CO3	Learn to highlight and assess themselves on social media.								
CO4	Acquire techniques to solve critical problems in an interview, develop strategies to crack interviews, improve their communication skills, and boost their confidence.								
CO5	Students will be well-equipped with all the necessary tools and skill sets to prepare a professional resume.								

Unit-No.	**Content**	**Contact Hour**	**Learning Outcome**	**KL**
I	**Presentation Skills** • Introduction • Essential characteristics of a good presentation • Preparation of a good presentation	**8**	Develop the ability to create and deliver impactful presentations by understanding essential characteristics, preparation techniques, and the use of visual aids.	1,2
II	**Public Skills** • Fear of Public Speaking, • Understanding and Overcoming Fear of Public Speaking, • Confidence and Control, • Physiology and Stress -Control/Process, • Tips for Presentations and Public Speaking, • Tips for Using Visual Aids in Presentations, • Process for Preparing and Creating Presentations, • Delivering Presentations Successfully, • Doubt Clearing and Summary of Main Points	**9**	Overcome the fear of public speaking and gain confidence through techniques in stress control, effective delivery, and audience engagement.	2,3, 4
III	**Practical session on Resume, Curriculum Vitae, Writing cover letter & LinkedIn Profile** • Preparation, submission& screening of Resume. • Practical session on cover letter screening session • Creating a profile on LinkedIn • How to utilize it	**9**	Master the creation and optimization of professional resumes, cover letters, and LinkedIn profiles to enhance job application success.	2,4, 6

IV	**Leadership & Management Skills** • Concepts of Leadership, • Leadership Styles, • Manager VS Leader, • How to bean Effective Leader, • Mock/ Practice Session, • Doubt Clearing Session	**9**	Learn the concepts of leadership, different leadership styles, and practical skills to be an effective leader through mock sessions and feedback.	2,3, 4
V	**Research Paper –Writing Skills** • How to write a research paper • Key point in Research Work	**8**	Acquire the skills to write and structure a research paper effectively, focusing on key aspects of research work.	2,3, 4
VI	**Interview Skills & Dress code Ethics** • Types of the interview- telephonic, virtual & face to face • Online interview, personal interview, • Panel interview, • Group interview, • JAM session, • Types of interview questions- traditional/common interview questions, Case interview questions, • General Strategies for answering questions, • Marketing your skills and experiences, • Preparation before the interview, • How to dress up for an interview, • How to maintain eye contact and positive body language, • How to be presentable, • Interview dos and don'ts, • Introduction to Dress Code Ethics, • Purpose and Importance • How to Make 'FIRST IMPRESSION' • What to Wear During Interviews or Any Other Formal Meetings–Male & Female	**9**	Prepare for various interview types, understand appropriate dress codes, and learn strategies for making a positive first impression.	2,3, 4,5
VII	**Mock Interview** • Practical Mock Interview, • Feedback-Receiving Feedback, • Giving Feedback, • Advantages of Effective Feedback, • How to deal with negative feedback.	**8**	Gain practical interview experience, receive constructive feedback, and learn to handle both positive and negative feedback effectively.	3,4, 5,6

TEXT BOOKS:

T1. Barrett, Grant. 2016. Perfect English Grammar: The Indispensable Guide to Excellent Writing and Speaking, Zephyros Press.

T2. Mc Dowell, Gayle Laakmann. 2008. Cracking the Coding Interview (Indian Edition).

REFERENCE BOOKS:

R1. Garg. Manoj Kr. (2018)*English Communication: Theory and Practice*

OTHER LEARNING RESOURCES:

1. https://brightlinkprep.com/10-best-toefl-prep-books/
2. https://files.eric.ed.gov/fulltext/EJ1132742.pdf.

RELATIONSHIP BETWEEN COURSE OUTCOMES (CO) AND PROGRAMME OUTCOMES:

CO PO Mapping		
SN	**Course Outcome (CO)**	**Mapped Programme outcome**
1	Prepare the learners to speak with greater control and charisma in front of others.	**5**
2	Learn how to have a positive impact on their thought process and problem-solving skills.	**5,8**
3	Learn to highlight and assess themselves on social media.	**5**
4	Acquire techniques to solve critical problems in an interview, develop strategies to crack interviews, improve their communication skills, and boost their confidence.	**5,7**
5	Students will be well-equipped with all the necessary tools and skill sets to prepare a professional resume.	**5,6**

SEMESTER – III									
Course Title	**RESEARCH ETHICS**								
Course code	**23UMRE214R**	**Total credits: 1**	**L**	**T**	**P**	**S**	**R**	**O/F**	**C**
		Total hours: 15T	**1**	**0**	**0**	**0**	**0**	**0**	**1**
Pre-requisite	**Nil**	**Co-requisite**	**Nil**						
Programme	**Master of Physiotherapy**								
Semester	**Fall/ III semester of the second year of the programme**								
Course Objectives	1.Aims to lay a foundation for empirical research and make students aware of relevant guidelines, policies, and codes relating to ethical research, as well as to provide, via a study of ethical theories, concepts. 2.To educate researchers on the ethical principles and guidelines necessary to conduct research responsibly. 3.To ensure the protection of human participants, and the integrity of research data, while upholding principles like informed consent, confidentiality, and justice.								
CO1	To be able to describe and apply theories and methods in ethics and research ethics								
CO2	To acquire an overview of important issues in research ethics, like responsibility for research, ethical vetting, and scientific misconduct.								
CO3	To acquire skills of presenting arguments and results of ethical inquiries.								
CO4	To be able to Identify the concepts and procedures of sampling, data collection, analysis and reporting								
CO5	Ability to develop and implement informed consent processes that clearly communicate research details and participant rights.								

Unit-No.	Content	Contact Hour	Learning Outcome	KL
I	**ETHICS:** Introduction to the course and each other; an introduction to moral theory. Ethics: definition, moral philosophy, nature of moral judgements and reactions. Research regulation; self–regulation; research ethics. Honesty, candor, compromise and integrity. Data ownership and stewardship; conflicts of interest; collaboration. Human and Non-Human subjects. Research and researchers in society	3	To gain knowledge about the meaning of ethics.	3,5
II	**SCIENTIFIC CONDUCT-**Ethics with respect to science and research. Intellectual honesty and research integrity. Scientific misconducts: Falsification, Fabrication, and Plagiarism (FFP). Redundant publications: duplicate and overlapping publications, salamislicing. Selective reporting and misrepresentation of data.	3	To learn about the ethics in respect to research like plagiarism, falsification and misrepresentation of data.	1,2, 3

III	**PUBLICATION ETHICS**- Publication ethics: definition, introduction and importance. Best practices/standards setting initiatives and guidelines: COPE, WAME, etc. Conflicts of interest. Publication misconduct: definition, concept, problems that lead to unethical behaviour and vice versa, types. Violation of publication ethics, authorship and contributor ship. Identification of publication misconduct, complaints and appeals. Predatory publishers and journals.	3	To learn about ethics in regards of writing research paper.	2,3, 5
IV	**OPEN ACCESS PUBLISHING-**Open access publications and initiatives**.** SHERPA/RoME0 online resource to check publisher copyright & self-archiving policies. Software tool to identify predatory publications developed by SPPU**.** Journal finder / journal suggestion tools viz. JANE, Elsevier Journal Finder, Springer Journal Suggester, etc. **PUBLICATION MISCONDUCT** Group Discussions; Subject specific ethical issues, FFP, authorship. Conflicts of interest. Complaints and appeals: examples and fraud from India and abroad. Software tools; Use of plagiarism software like Turn tin, Urkund and other open source software tools	6	To learn about the indexing databases, impact factor of journal and journal citation.	1,3, 4,5, 6
V	**DATABASES AND RESEARCH METRICS–**Databases: Indexing databases. Citation databases: Web of Science, Scopus, etc. Research Metrics: Impact Factor of journal as per Journal Citation Report, SNIP, SJR, IPP, Cite Score. Metrics: h-index, g index, I 10 index, altmetrics.	3	To learn about ethics in regards of writing research paper.	2,3, 5

TEXT BOOKS:

T1: Bird, A(2006).Philosophy of Science. Rutledge.
T2: Macintyre, Alasdair(1967)A Short History of Ethics. London.
T3: Indian National Science Academy(INSA),Ethics in Science Education, Research and Governance(2019)

REFERENCE BOOKS:

R1: National Academy of Science, National Academy of Engineering and Institute of Medicine(2009). On Being a Scientist: A Guide of Responsible Conduct in Research: Third Edition, National academics Press
R2: GeorgeR, (2011).Sociological Theory,Rawat Publication, NewDelhi India. GeorgeR,(2019). Post Modern Social Theory, Rawat Publication, New Delhi, India.

RELATIONSHIP BETWEEN COURSE OUTCOMES (CO) AND PROGRAMME OUTCOMES:

CO PO Mapping		
SN	**Course Outcome (CO)**	**Mapped Programme outcome**
1	To be able to describe and apply theories and methods in ethics and research ethics	**6**
2	To acquire an overview of important issues in research ethics, like responsibility for research, ethical vetting, and scientific misconduct.	**4,6**
3	To acquire skills of presenting arguments and results of ethical inquiries.	**6**
4	To be able to Identify the concepts and procedures of sampling, data collection, analysis and reporting	**6**
5	Ability to develop and implement informed consent processes that clearly communicate research details and participant rights.	**6**

SEMESTER – III									
Course Title	**TECHNO PROFESSIONAL SKILL – II (PHYSIOTHERAPY IN HEALTH MANAGEMENT AND ADMINISTRATION)**								
Course code	**23MPTO216R**	**Total Credits: 2**	**L**	**T**	**P**	**S**	**R**	**O/F**	**C**
		Total Hours: 60P	**0**	**0**	**4**	**0**	**0**	**0**	**2**
Pre-requisite	**Nil**	**Co-Requisite**	**Nil**						
Programme	**Master Of Physiotherapy**								
Semester	**Fall/ III semester of the second year of the programme**								
Course Objectives	1.To understand the fundamental principles of physiotherapy management, including administration and practice, enabling students to apply this knowledge as informed professionals in the field. 2. To develop an understanding of legal and ethical issues relevant to physiotherapy practice, equipping students with the necessary knowledge to practice ethically and within the bounds of the law. 3.To equip physiotherapy students with the knowledge and skills necessary to effectively manage and administer physiotherapy services within a healthcare system.								
CO1	Acquinted adequate knowledge and skill in physiotherapy, clinic and department management.								
CO2	Apply creatively and effectively whilst upholding professional standards and relationships with a range of stakeholders (including clients, colleagues, careers, families, employers, insurers and others whose presence impacts on the patient/client, and other treatment providers and team members) with different understandings, perspectives and priorities influencing physiotherapy practice.								
CO3	Recognize the role of Physiotherapy in the context of the health needs of the community and National priorities in the health sector.								
CO4	Impart adequate knowledge of ethics and demonstrate ethical behaviour in practice.								
CO5	Gain the basic management knowledge and skills essential for effective functioning and to be conversant with planning organization, work scheduling, cost & control of quality in relation to Physiotherapy services and care.								

Unit-No.	**Content**	**Contact Hour**	**Learning Outcome**	**KL**
I	**Introduction** Functions of management Evolution of management through scientific management Theory-Classical Theory, System Approach, Contingency Approach. Functions of management. Management process – planning, organization, direction, controlling(Decision- making) Quantitative methods of management: relevance of statistical and/ or techniques in management	**10**	By the end of the of the unit students will be able to provide detailed information on basic knowledge about functioning of management and its decision making	1,2, 3
II	**Personal Management** Staffing Recruitment selection. Performance analysis and appraisal Job satisfaction Discipline.	**12**	By the end of the of the unit students will gain proper knowledge on methods and procedure of teaching staffing pattern and job satisfaction	1,2, 3,4

III	**Marketing and Total Quality Management** Marketing Research production planning, pricing, channels of distribution, promotions, consumer behaviour, and licenser. Basis of quality management, quality assurance program in hospitals. Medical audit and international quality system.	**15**	By the end of the of the unit students will know about marketing and its importance in quality management	1,2, 3,4
IV	**Administration: Hospital as an Organization:** Introduction: Branches of administration, Nature and scope of administration, How to be an effective administrator, Planning hospital administration as part of a balanced health care program. Personal policies – Communication & Contact, administration principles based on goal & functions at large hospital / domiciliary set up / private clinical / academic institution. Hospital administration: Organization, Staffing, Information, Communication, Coordination, Cost of services, Monitoring and evaluation. Financial issues including budget and income generation**.**	**12**	By the end of the of the unit students will know about organization and administration of a hospital and its policies and budgeting along with its importance in staff competence	1,2, 3,4, 5,6
V	**Administration and Organization of physiotherapy department** Principles of hospital administration and its applications to physiotherapy. Organization of physiotherapy department: Planning, Space, Manpower, Other basic resources. The implications and confirmation to the rules of professional conduct. Material management: Pharmacy, Hospital waste disposal. Quality assurance: Hospital acquired infection, Quality assurance through record review and medical audit. Public relations in hospital and human resource management... Current Issues.	**11**	By the end of the of the unit students will have thorough knowledge about the importance of designing physiotherapy department in hospital and its multiple aspects in quality patient care including ethical issues	1,2, 3,4, 5,6

TEXT BOOKS:

T1: Physical Therapy Administration & Management by Hickik Robert J
T2: Management in Physical Therapy Practices by Catherine G.
T3: Principles of Hospital Administration and Planning-Sakharkar,B M.
T4: Opportunities in Hospital & Health Care Administration- Bhardwaj ,Pradeep.

REFERENCE BOOKS:

R1: Hospital Administration & Management :A Comprehensive Guide- Gupta,Jaydeep Das.
R2: The Hospital Administration- George,MA.
R3: Hospital administration and human resource management by R.C.Goyal, 4th edition.

RELATIONSHIP BETWEEN COURSE OUTCOMES (CO) AND PROGRAMME OUTCOMES

CO PO Mapping		
SN	**Course Outcome (CO)**	**Mapped Programme outcome**
1	Acquinted adequate knowledge and skill in physiotherapy, clinic and department management.	**1,2,3,5,6,7,8**
2	Apply creatively and effectively whilst upholding professional standards and relationships with a range of stakeholders (including clients, colleagues, careers, families, employers, insurers and others whose presence impacts on the patient/client, and other treatment providers and team members) with different understandings, perspectives and priorities influencing physiotherapy practice.	**1,2,3,5,6,7,8**
3	Recognize the role of Physiotherapy in the context of the health needs of the community and National priorities in the health sector.	**1,2,3,5,6,7,8**
4	Impart adequate knowledge of ethics and demonstrate ethical behaviour in practice.	**2,4,5,6,7,8**
5	Gain the basic management knowledge and skills essential for effective functioning and to be conversant with planning organization, work scheduling, cost & control of quality in relation to Physiotherapy services and care.	**1,2,3,5,6,7,8**

SEMESTER – III									
Course Title	**MINI-RESEARCH (SURVEY/EXPERIMENTS- R3)**								
Course code	**23MPTO217R**	**Total Credits: 2**	**L**	**T**	**P**	**S**	**R**	**O/F**	**C**
		Total Hours: 150	**0**	**0**	**0**	**4**	**6**	**0**	**2**
Pre-requisite	**Nil**	**Co-Requisite**	**Nil**						
Programme	**Master Of Physiotherapy**								
Semester	**Fall/ III semester of the second year of the programme**								
Course Objectives	1.To have a basic knowledge and understanding of surveys and experiments and its clinical implications in clinical practice. 2.Learn how to formulate research questions, design a study, collect and analyse data, and present findings in a structured format. 3.Apply research methods to investigate a specific problem within a limited scope, exploring potential solutions and implications.								
CO1	Enable Students a thorough understanding of how survey /experiments can provide useful causal inferences.								
CO2	knowledge of how to design and analyze simple and complex experiments/ surveys								
CO3	Ability to evaluate experimental research / surveys and apply these methods in their own research.								
CO4	Enable students the basic knowledge and understanding in undertaking surveys and experiments into their clinical practice								
CO5	Enables the students to develop new skills and strategies in designing their survey/ Experiments which can be implemented in patient care.								

Unit-No.	**Content**	**Contact Hour**	**Learning Outcome**	**KL**
I	What is literature review?	**30**	Identify literary techniques and creative uses of language in literary texts.	1,2
II	How to Begin the literature Review	**30**	Adapt their texts to particular audiences and purposes.	1,2
III	How to write main body of literature review	**30**	The students will learn about the importance of ethical consideration in research writing	1,2
IV	How to write conclusion of literature Review	**30**	The students will be able to select one of the major key concepts and variables from the chosen research topic.	1,2,3
V	How to analyse gap in literature review.	**30**	The students will get practical exposure in writing research papers in proper APA format and styles.	1,2,3,4

TEXT BOOKS:

T1: Multiple Stressors: Literature Review and Gap Analysis (WERF Research Report Series) by S.M. Swanson

RELATIONSHIP BETWEEN COURSE OUTCOMES (CO) AND PROGRAMME OUTCOMES

CO PO Mapping		
SN	**Course Outcome (CO)**	**Mapped Programme outcome**
1	Enable Students a thorough understanding of how survey /experiments can provide useful causal inferences.	**1,2,3,4**
2	knowledge of how to design and analyze simple and complex experiments/ surveys	**1,2,3,4**
3	Ability to evaluate experimental research / surveys and apply these methods in their own research.	**1,2,3,4**
4	Enable students the basic knowledge and understanding in undertaking surveys and experiments into their clinical practice	**1,2,3,4**
5	Enables the students to develop new skills and strategies in designing their survey/ Experiments which can be implemented in patient care.	**1,2,3,4**

SEMESTER – IV									
Course Title	**ELECTIVE: MUSCULOSKELETAL DISORDERS AND SPORTS**								
Course code	**23MPTO221R**	**Total Credits: 6**	**L**	**T**	**P**	**S**	**R**	**O**	**C**
		Total Hours: 45T+90P	**3**	**0**	**6**	**0**	**0**	**0**	**6**
Pre-requisite	**Anatomy, Clinical Orthopaedics and Traumatology, Physiotherapy in Orthopaedics and Traumatology, Elective I: Musculoskeletal Disorders and Sports**	**Co-Requisite**	**Nil**						
Programme	**Master of Physiotherapy**								
Semester	**Winter/IV semester of second year of the programme**								
Course Objectives	1. Will be able to identify, discuss and analyse the musculoskeletal dysfunction in terms of biomechanical, kinesiological and biophysical basis. 2. Will use the anatomical rationale for clinical tests used in differential diagnosis. 3. Learn to establish management plans for patients with musculoskeletal conditions and injuries.								
CO1	Aquinted the ability to perform an appropriate subjective and physical examination, with development of suitable analytical skills to evaluate data obtained.								
CO2	Develop clinical reasoning that incorporates theoretical concept with evidence-based practice in the field of musculoskeletal physiotherapy.								
CO3	Acquinted the implication of dysfunction on the Neuro- Musculoskeletal system and the student's clinical decision making.								
CO4	Evaluate patients with scale, out come measures and asses the progression.								
CO5	Gained the knowledge about the use recent Technique/ approaches to treat & train patients with musculo-skeletal deficit in children, adults & geriatrics.								

Unit-No.	Content	Contact Hour	Learning Outcome	KL
I	• Analysis and classification of sports and sports specific injuries and its management. • Management of sport injuries, sports fitness. • Principles of Injury Prevention. • Medico legal issues in sports, Sports Psychology, Sports Nutrition and Sports pharmacology.	**10**	Students will be able to know and apply the analysis and classify the sports injuries. Principles of injury prevention and medico legal issues.	1,2
II	• Rehabilitation of paediatric musculoskeletal disorders. • Orthopaedic implants-designs, materials, indications, post-operative assessment and training. • External aids, appliances, adaptive self-help devices; prescription, biomechanical compatibility, • Check-out and training.	**5**	They will be able to understand the implants use din orthopaedic surgery and about the external aids and how to prescribe them.	1,2,3

III	• Manual therapy: soft tissue manipulations and mobilization, neural mobilization, acupressure.(Cyriax, Maitland, Butler, McKenzie, Kaltenborn, Mulligan) • Pilates-school of thought, Chiropractic school of thought, Osteopathic school of thought. • Myofascial Release technique and Muscle Energy technique. • Joint manipulation – peripheral joints and vertebral joints.	**15**	The students will be able to apply the techniques of manual therapy, the school of thoughts and the technique of myofascial release.	1,2,3, 4
IV	• Neuromuscular Taping Techniques. • Electro diagnosis: Electromyography and evoked potential studies.	**5**	They will be able to know the neuromuscular taping techniques and the electrodiagnosis	1,2,3, 4
V	• Community based rehabilitation in musculoskeletal disorders. • Recent Advances in Musculoskeletal Disorders and Sports Physiotherapy.	**10**	The students will be able to know the recent advances in the field of surgery and community-based rehabilitation.	1,2,3, 4,5,6
Practical	Techniques for rehabilitation, managing complications, and ensuring optimal recovery. Strategies for managing amputations and repetitive strain injuries, including pain management and functional training. Management techniques for conditions like osteoarthritis and related disorders. Methods for evaluating hand function, gait, posture, ADLs, and occupational tasks. Assessment and management of locomotor disabilities, including medical, surgical, and sports psychology aspects. Rehabilitation protocols following joint replacements, implants, and soft tissue surgeries. .	**90**	These practical skills will equip students with comprehensive knowledge and hands-on experience in various aspects of physiotherapy, ensuring they are well-prepared to manage a wide range of conditions effectively	

TEXT BOOKS:

T1: Jack H Wilmore , David L Costill : Physiology of Sports & Exercise 6rd Ed
T2: Apley & Soloman : Apley's System of Orthopedics & Fracture 1998/ 9th Ed
T3: Norkin, Cynthia C White, D Joyce : Measurement of Joint Motion 5th ed
T4: Margaret, Nordin : Basic Biomechanics of the Musculoskeletal System 2001/ 3rd Ed
T5: Jonathan K. Ehrman, Paul M. Gordon: Clinical Exercise Physiology 3rd ed

REFERENCE BOOKS:

R1: Physiotherapy in Orthopaedics -Fiona Coutts
R2: Peggy A. Houglum , Dolores B. Bertoti : Brainstorm's: Clinical Kinesiology 1998/6th Ed
R3: Stephen L Demeter , Gunnar B J Anderson, george b j smith : Disability Evaluation 1996
R4: David H Perrin : Athletic Taping & Bracing 3rd ed
R5: Craik, Rebecall : Gait's Analysis 1994/ 1st Ed
R6: Gabriel Stux Bruce Pomeranz : Basics of Acupuncture 3rd revised and enlarged edition

OTHER LEARNING RESOURCES:

1.Physical Therapy (APTA, America)
2. Physiotherapy (CSP London)
3. American Journal Of Physical Medicine And Rehabilitation.
4. Physiotherapy (Canada)
5. Physiotherapy Theory And Practice.
6. Australian Journal Of Physiotherapy
7. Journal Of Indian Association Of Physiotherapy
8. Clinical Kinesiology
9. Journal Of Biomechanics
10. American Journal Of Sports Exercises.
11. Pediatric Physical Therapy.
12. Journal Of Rehabilitation Research And Development.
13. Journal of Cardio Pulmonary Rehabilitation.
14. Archives Of Physical Medicine And Rehabilitation.
15. Journal Of Pediatric Orthopedics.
16. Clinical Rehabilitation.
17. Spine.

RELATIONSHIP BETWEEN COURSE OUTCOMES (CO) AND PROGRAMME OUTCOMES

CO PO Mapping		
SN	**Course Outcome (CO)**	**Mapped Programme outcome**
1	Aquinted the ability to perform an appropriate subjective and physical examination, with development of suitable analytical skills to evaluate data obtained.	**1,2,3,4,5,6,7,8**
2	Develop clinical reasoning that incorporates theoretical concept with evidence-based practice in the field of musculoskeletal physiotherapy.	**1,2,3,4,5,6,7,8**
3	Acquinted the implication of dysfunction on the Neuro-Musculoskeletal system and the student's clinical decision making.	**1,2,3,4,5,6,7,8**
4	Evaluate patients with scale, out come measures and asses the progression.	**1,2,3,4,5,6,7,8**
5	Gained the knowledge about the use recent Technique/ approaches to treat & train patients with musculo-skeletal deficit in children, adults & geriatrics.	**1,2,3,4,5,6,7,8**

SEMESTER – IV									
Course Title	**ELECTIVE: NEUROLOGICAL AND PSYCHOSOMATIC DISORDERS**								
Course code	**23MPTO222R**	**Total credits: 6** **Total hours: 45T+90P**	**L**	**T**	**P**	**S**	**R**	**O**	**C**
			3	**0**	**6**	**0**	**0**	**0**	**6**
Pre-requisite	Neuroanatomy, physiology, clinical neurology & neurosurgery neurological conditions	**Co-requisite**	**Nil**						
Programme	**Master of Physiotherapy**								
Semester	**Winter/IV semester of second year of the programme**								
Course Objectives	1. To introduce students to the concepts related to the management of various neurological conditions and the rehabilitation following disorders of special senses, speech, language, and perception. 2. To provide an understanding of the assessment of fitness and exercise prescription for special neurological conditions. 3. Distinguish normal from abnormal findings in neurological examinations.								
CO1	Apprehend the Knowledge regarding various advanced electro diagnosis and its applicability to various paediatric and adult neurological conditions								
CO2	Identify the essential components of task and perform a task analysis in neurological conditions								
CO3	Evaluate a client with Neurological condition with detailed knowledge regarding approaches for various adult neurological assessment and management.								
CO4	Apply knowledge of assistive technology applicable to various neurological conditions as a mean of prevention and management								
CO5	Perform evaluation of disability, legislation & social care applicable to various neurological conditions as a mean of prevention and management.								

Unit-No.	**Content**	**Contact Hour**	**Learning Outcome**	**KL**
I	Physical therapy management of Motor neuron diseases, neuromuscular junction disorders, Brain tumour, and Neurocutaneas disorders. Associated functional disturbances of higher functions and their testing and training, Learning skills, A.D.L and functional activities. Aids and appliances in neurological disorders. Prescriptions, testing and training	**5**	The student will be able to learn about the exercise prescriptions and appliances and aids required in the physiotherapy management of various neurological disorders	1,2
II	Diseases of spinal cord, peripheral nerves and cranial nerves, Physiotherapy management for neuromuscular disorders. Bladder and Bowel dysfunction and its rehabilitation, Application of Functional electrical stimulation and Bio-feedback in neurological rehabilitation.	**10**	To learn and explore about the physiotherapy management of various neurological diseases and its advanced approaches	1,2,3

III	Paediatric neurology (Cerebral Palsy, Developmental disorders, Neuropsychiatric disorders, Cerebral & Craniovertebral anomalies & metabolic disorders of nervous system). Assessment and management of various neurological gaits, Community based rehabilitation for neurological dysfunction. Disability evaluation and management.	**15**	To learn and gather knowledge about the assessment and management of paediatric neurological cases and abnormal gait	1,2,3,4
IV	Cognitive disorders and its rehabilitation, Oromotor rehabilitation, Vestibular disorders and its rehabilitation, Rehabilitation following disorders of Special Senses, Speech. Language and Perception.	**5**	To understand the concepts, theories and rehabilitation approaches related to cognitive, vestibular and other special senses	1,2,3,4
V	Basic knowledge of drugs used for neurological conditions, Assessment of fitness and exercise prescription for special neurological population – Stroke, Paraplegia, TBI, Multiple Sclerosis, MND, Parkinsonism, & Ataxia, Recent Advances in Neurological Rehabilitation.	**15**	To understand the concepts of drugs and exercise required in physical therapy treatment related to various neurological disorders	1,2,3, 4,5,6
Practical	Following are the topics to be included Review of General assessment , Pain assessment ,sensory and motor assessment , Assessment of Tone, flexibility, tightness, Muscle Length Testing ,Postural assessment, Limb length measurement, Balance assessment , Coordination assessment, Reflex Testing , Cranial nerve testing. Nerve Tension testing ,EMG/ NCV report reading &analysis, Clinical Gait assessment, Functional assessment ,Environmental assessment	**90**	To Develop skills in patient history taking, observation, and physical examination, learn to differentiate between types of pain (nociceptive, neuropathic, and referred pain), Develop ability to assess the impact of pain on function and quality of life.	

TEXT BOOKS:

T1: Human neuroanatomical – Carpenter M.B, Williams & Wilkins, Baltimore, 1983
T2: Physical therapy Assessment in Early Infancy –Wilhelm Churchill Liningstone, New York, 1993
T3: Elements of paediatric physiotherapy- Eckerley P, Churchill Liningstone, Edingburgh, 1993
T4: The Growth chart – WHO, Geneva, 1986
T5: Orthotics in neurological rehabilitation – Aisen, Demos Publication, New York 1992
T6: Manual of nerve condition velocity techniques – De Lisa, Raven press, New York, 1982
T7: Physical rehabilitation: assessment and treatment – O'Sullivan, F.A Davis, Philadelphia 1994.
T8: Neuro-rehabilitation – Farber, W.B Saunders, Philadelphia 1982
T9: Gaits analysis – Perry J., Black Thorofare, New Jersy, 199

REFERENCE BOOKS:

R1: The neural basis of motor control – Black I, Churchill Livingstone, London-1987
R2: Physical therapy management of Parkinson's disease – Turnbull Gerode , Churchill,
R3: Abnormal postural reflex activity caused by Brain lesions – Bobath b. Aspen publications, Rockville, 1897.
R4: Disorders of voluntary muscle- Eagel, Churchill, Livingstone, Edingburgh 1988.
R5: A Clinician's view of neuro muscle disorder – Brook M.H Williams and Wilkins, Baltimore 1986.
R6: Proprioception, neuro muscular facilitation techniques – Knot M. and Voss, Harper and Row, New York 1972 2nd edition.
R7: Stroke rehabilitation – Laidler, Capman and Hall, London 1994.

RELATIONSHIP BETWEEN COURSE OUTCOMES (CO) AND PROGRAMME OUTCOMES

CO PO Mapping		
SN	**Course Outcome (CO)**	**Mapped Programme outcome**
1	Apprehend the Knowledge regarding various advanced electro diagnosis and its applicability to various pediatric and adult neurological conditions	**1,2,3,4,5,6,7,8**
2	Identify the essential components of task and perform a task analysis in neurological conditions	**1,2,3,4,5,6,7,8**
3	Evaluate a client with Neurological condition with detailed knowledge regarding approaches for various adult neurological assessment and management.	**1,2,3,4,5,6,7,8**
4	Apply knowledge of assistive technology applicable to various neurological conditions as a mean of prevention and management	**1,2,3,4,5,6,7,8**
5	Perform evaluation of disability, legislation & social care applicable to various neurological conditions as a mean of prevention and management.	**1,2,3,4,5,6,7,8**

SEMESTER – IV									
Course Title	**ELECTIVE (CARDIO-RESPIRATORY DISORDERS)**								
Course code	**23MPTO223R**	**Total credits:6**	**L**	**T**	**P**	**S**	**R**	**O/F**	**C**
		Total hours: 45T+90P	**3**	**0**	**6**	**0**	**0**	**0**	**6**
Pre-requisite	**Anatomy, Physiology**	**Co-requisite**	**Nil**						
Programme	**Master of Physiotherapy**								
Semester	**Winter/IV semester of second year of the programme**								
Course Objectives	1. To introduce the students to the concepts related Cardiopulmonary system, Anatomical & physiological differences, Physiotherapy techniques, Drug Therapy. 2. To impart the students to the concepts related Investigations and tests of Cardiopulmonary system. 3. To make the students understand about the concepts related general health conditions.								
CO1	Acquainted the students to be able to learn about the applications and execution of different physiotherapy management following general medical and surgical conditions and in ICU. To gain knowledge about Poisoning drug overdose and drawning and also to learn about respiratory pharmacology.								
CO2	Categorise physiotherapy management of peripheral vascular disorders and also will gain knowledge about exercise testing exercise planning and prescription.								
CO3	Acquainted the student to learn about physiotherapy management in Obstructive and restrictive lung disorders. Will also learn about cardiac and pulmonary rehabilitation. The student will also learned about physiotherapy management following congenital and acquired heart diseases.								
CO4	Choose different physiotherapy modalities for wound healing. Will also gain knowledge to prescribe exercises for health promotion and fitness for special populations- DM, Obesity, IHD, COPD, HTN								
CO5	Plan out applications and execution of different physiotherapy management in CBR to improve cardiovascular and respiratory disorders.								

Unit-No.	**Content**	**Contact Hour**	**Learning Outcome**	**KL**
I	• Physiotherapy management for common conditions in the ICU • Poisoning, Drug overdose, and drowning. • Physiotherapy management following general Medical & Surgical conditions • Respiratory Pharmacology	**5**	To learn about the applications and execution of different physiotherapy management following general medical and surgical conditions and in ICU. To gain knowledge about Poisoning drug overdose and drowning and also to learn about respiratory pharmacology.	1,2
II	Physiotherapy management of peripheral vascular disorders Exercise testing, planning and prescription: aerobic and anaerobic exercise training.	**5**	Be able to learn physiotherapy management of peripheral vascular disorders and also will gain knowledge about exercise testing exercise planning and prescription.	1,2,3

III	Physiotherapy management in Obstructive and restrictive lung disorders Pulmonary Rehabilitation Physiotherapy management following congenital and acquired heart diseases Cardiac rehabilitation – Conservative and post-operative management.	**15**	Will gain knowledge in physiotherapy management in Obstructive and restrictive lung disorders. Will also learn about cardiac and pulmonary rehabilitation. Will also learned about physiotherapy management following congenital and acquired heart diseases.	1,2, 3,4
IV	Physiotherapy modalities used for wound healing Exercise Prescription for health promotion and fitness for special populations- DM, Obesity, IHD, COPD, HTN	**10**	Will gain knowledge in using different physiotherapy modalities for wound healing. Will also gain knowledge to prescribe exercises for health promotion and fitness for special populations- DM, Obesity, IHD, COPD, HTN	1,2, 3,4
V	C.B.R in Cardio-vascular and respiratory conditions. Recent advances in Cardio respiratory physiotherapy.	**10**	To Learn the applications and execution of different physiotherapy management in CBR to improve cardiovascular and respiratory disorders.	1,2, 3,4, 5,6

TEXT BOOKS:

T1: Disease & Drug Consult: Respiratory Disorders by Lippincott, Wolters Kluwer | Lippincott Williams & Wilkins.

REFERENCE BOOKS:

R1: Cardiorespiratory Physiotherapy Adults And Paediatrics 5Th Edition by Eleanor Main and Linda Denehy, ELSEVIER.

OTHER LEARNING RESOURCES:

E-lectures, Seminars, Journals, Webinars

1. Clinical Kinesiology
2. Journal of Biomechanics
3. Pediatric Physical Therapy
4. Journal of Rehabilitation Research & Development
5. European journal of physiotherapy
6. Subject related journals, website links etc.
7. Topic related to the subject in Google scholar, Pudmed, etc
8. Topic related to the subject in YouTube

RELATIONSHIP BETWEEN COURSE OUTCOMES (CO) AND PROGRAMME OUTCOMES

CO PO Mapping		
SN	**Course Outcome (CO)**	**Mapped Programme outcome**
1	Acquainted the students to be able to learn about the applications and execution of different physiotherapy management following general medical and surgical conditions and in ICU. To gain knowledge about Poisoning drug overdose and drawning and also to learn about respiratory pharmacology.	**1,2,3,4,5,6,7,8**
2	Categorise physiotherapy management of peripheral vascular disorders and also will gain knowledge about exercise testing exercise planning and prescription.	**1,2,3,4,5,6,7,8**
3	Acquainted the student to learn about physiotherapy management in Obstructive and restrictive lung disorders. Will also learn about cardiac and pulmonary rehabilitation. The student will also learned about physiotherapy management following congenital and acquired heart diseases.	**1,2,3,4,5,6,7,8**
4	Choose different physiotherapy modalities for wound healing. Will also gain knowledge to prescribe exercises for health promotion and fitness for special populations- DM, Obesity, IHD, COPD, HTN	**1,2,3,4,5,6,7,8**
5	Plan out applications and execution of different physiotherapy management in CBR to improve cardiovascular and respiratory disorders.	**1,2,3,4,5,6,7,8**

SEMESTER – IV									
Course Title	**ELECTIVE: PAEDIATRICS**								
Course code	**23MPTO224R**	**Total Credits: 6**	**L**	**T**	**P**	**S**	**R**	**O**	**C**
		Total Hours: 45T+90P	**3**	**0**	**6**	**0**	**0**	**0**	**6**
Pre-requisite	Neuroanatomy, Physiology, ELECTIVE: Paediatrics	**Co-requisite**	**Nil**						
Programme	**Master of Physiotherapy**								
Semester	**Winter/IV semester of second year of the programme**								
Course Objectives	1. To introduce the students to the concepts of different rehabilitation approaches 2. To introduce the students to the management of congenital locomotor disorders including the prosthetic and orthotic management. 3. To introduce the students to the analysis of fitness and exercise prescription for special paediatric populations, Disorders of perception, Paediatric surgeries, Sports and fitness in paediatrics,								
CO1	Asses and diagnose all possible findings on the patient to plan a Rehabilitation programme.								
CO2	Plan out the documentation of patients with scale, outcome measures, electro diagnostic procedures and asses the progression.								
CO3	Apply recent technique/ approaches to treat & train children with Neurological, Orthopaedic & Cardio respiratory deficit, and be able to impart knowledge for training the under graduate students								
CO4	Describe the importance to rehabilitate the community based children.								
CO5	Rephrase the need of fitness in paediatric population								

Unit-No.	Content	Contact Hour	Learning Outcome	KL
I	Management of congenital locomotor disorders including the prosthetic and orthotic management. Analysis of fitness and exercise prescription for special paediatric populations–cerebral palsy, downs syndrome, polio, muscular dystrophy, Juvenile diabetes and obesity.	**10**	By the end of the of the unit students will be able to provide detailed information on management of congenital disorders and exercise prescription for special population	1,2
II	Management of neuro paediatric patients Motor learning- theory and techniques Disorders of perception and sensory integration.	**10**	By the end of the of the unit students will gain proper knowledge on screening, perception disorders, motor learning techniques, giving emphasis on rehabilitating neuro patients	1,2, 3
III	Integrated approach in management of paediatric disorders. Pediatric surgeries and its post-operative management.	**15**	By the end of the of the unit students will know about the different rehabilitative approaches for management	1,2, 3,4
IV	Adaptive equipment for physically challenged children. Physical therapy in public schools. Sports and fitness in paediatrics.	**5**	By the end of the of the unit students will know about the standard assistive, adaptive equipment's for special children, importance of physiotherapy in school, followed by necessity of fitness and sports in paediatric population	1,2, 3,4

V	CBR in paediatric conditions. Recent Advances in Paediatric Physiotherapy	**5**	By the end of the of the unit students will have thorough knowledge community based rehabilitation in various paediatric conditions, also giving importance to recent advances in the field of physiotherapy	1,2, 3,4, 5,6
Practical	Understanding the stages of motor development from prenatal infancy to childhood. Identifying and assessing reflex development and maturation. Skills in diagnosing developmental milestones and delays. Proficiency in using various scales for developmental screening. Evaluating and diagnosing neuropathic and myopathic locomotor disorders. Strategies for early intervention and management of high-risk babies and neonatal care.	**90**	These practical skills will enable students to effectively assess and manage developmental issues, ensuring early and accurate intervention for better health outcomes.	

TEXT BOOKS:

T1: Physical therapy Research- Domholdt, W.B Saunders, Philadelphia. 1993
T2: Human neuroanatomy – Carpenter M.B, Williams & Wilkins, Baltimore, 1983
T3: Physical therapy Assessment in Early Infancy –Wilhelm Churchill Liningstone, New York, 1993
T4: Physical therapy for children – Campbell Suzann K, W.B Saunders, Philadelphia 1994
T5: Physical management of Multiple Handicapped – Freser, William & Wilkins, Baltimore.
T6: Elements of paediatric physiotherapy- Eckerley P, Churchill Liningstone, Edingburgh, 1993
T7: Physiotherapy in pediatrics – Shepherd R. Heinmann, London, 1980 2 nd edition
T8: The Growth chart – WHO, Geneva, 1986

REFERENCE BOOKS:

R1: Orthotics in neurological rehabilitation – Aisen, Demos Publication, New York 1992
R2: Electro-diagnosis in diseases of nerve and muscle – Kimura J, F.A Davis, Philadelphia.
R3: Physical rehabilitation: assessment and treatment – O'Sullivan, F.A Davis, Philadelphia 1994.
R4: The neural basis of motor control – Black I, Churchill Livingstone, London-1987
R5: Motor relearning programme for stroke – Carr, Aspen publication, Rock ville, 1987.
R6: Child with spina Bifida – Anderson E.M. and Spain B., Methun, London 1977.
R7: A manual of neonatal intensive care – Robert N.R.C, Edward Arnold, London 1986
R8: Measurement in physical therapy – Churchill, Livingstone, London 1988.

RELATIONSHIP BETWEEN COURSE OUTCOMES (CO) AND PROGRAMME OUTCOMES

CO PO Mapping		
SN	**Course Outcome (CO)**	**Mapped Programme outcome**
1	Asses and diagnose all possible findings on the patient to plan a Rehabilitation programme.	**1,2,3,4,5,6,7,8**
2	Plan out the documentation of patients with scale, outcome measures, electro diagnostic procedures and asses the progression.	**1,2,3,4,5,6,7,8**
3	Apply recent technique/ approaches to treat & train children with Neurological, Orthopaedic & Cardio respiratory deficit, and be able to impart knowledge for training the under graduate students	**1,2,3,4,5,6,7,8**
4	Describe the importance to rehabilitate the community-based children.	**1,2,3,4,5,6,7,8**
5	Rephrase the need of fitness in paediatric population	**1,2,3,4,5,6,7,8**

SEMESTER – IV									
Course Title	**DISSERTATION (RESEARCH/DATA ANALYSIS/DOCUMENTATION-R4)**								
Course code	**23MPTO225R**	**Total Credits: 12**	**L**	**T**	**P**	**S**	**R**	**O**	**C**
			0	**0**	**20**	**4**	**6**	**0**	**12**
Pre-Requisite	**Nil**	**Co-Requisite**	**Nil**						
Programme	**Master Of Physiotherapy**								
Semester	**Winter/IV semester of second year of the programme**								
Course Objectives	1. Students should be able to develop a research project and conduct the dissertation writing independently in physiotherapy. 2. Avoid collection of data that are not strictly necessary for understanding and solving the problem at hand. 3. Engage in systematic discovery and critical review of appropriate and relevant information sources and organize the study in clearly defined components or phases								
CO1	Impart the Knowledge of the most advanced research in the candidate's specialization area (Track) of Computer Science or Information Security, respectively								
CO2	Explain academic theory and the preparation of high-quality research pertinent to the field of study								
CO3	Choose appropriate research methods and techniques suitable for the candidate's research field								
CO4	Simplify current state of the art in the individual research area, and the ability to appropriately employ methods and existing research results in the development of new knowledge, theories and presentation of research in the individual research area								
CO5	Development of thesis will generally arise from the preparation of the peer review publication during the programme as to ensure that student is conversant with and in his or her area of specialization at the forefront of research in their field.								

COURSE DESCRIPTION:

This course serves as an introductory course in the dissertation methodology writing process. The focus of the course is the further development of the student's dissertation proposal towards their partial fullfillment of their MPT degree program

TEXT BOOKS:

T1: A Practical Guide to Dissertation and Thesis Writing
T2: Mark Stephan Felix and Ian Smith

RELATIONSHIP BETWEEN COURSE OUTCOMES (CO) AND PROGRAMME OUTCOMES

CO PO Mapping		
SN	**Course Outcome (CO)**	**Mapped Programme outcome**
1	Impart the Knowledge of the most advanced research in the candidate's specialization area (Track) of Computer Science or Information Security, respectively	**1,2,3,4,5,6,7,8**
2	Explain academic theory and the preparation of high-quality research pertinent to the field of study	**1,2,3,4,5,6,7,8**
3	Choose appropriate research methods and techniques suitable for the candidate's research field	**1,2,3,4,5,6,7,8**
4	Simplify current state of the art in the individual research area, and the ability to appropriately employ methods and existing research results in the development of new knowledge, theories and presentation of research in the individual research area	**1,2,3,4,5,6,7,8**
5	Development of thesis will generally arise from the preparation of the peer review publication during the programme as to ensure that student is conversant with and in his or her area of specialization at the forefront of research in their field.	**1,2,3,4,5,6,7,8**

INSTRUCTIONS TO ELECTIVE/ GE/ MOOCS/ PORJECTS/ VALUE ADDED/ OTHER COURSES

1. The students shall have to register for the courses they wish to pursue under the supervision of the programme coordinator/ mentor.

2. Discipline specific elective/professional electives/Interdisciplinary electives/ Specialization Elective Courses are to be selected by the students before the start of the respective semesters and register under the supervision of Programme Coordinators/Mentors.

3. The Generic Elective/Open Elective/ Interdisciplinary Elective courses have to be chosen by the students and register under the supervision of Programme Coordinators/Mentors.

4. Projects are to be undertaken by the students as prescribed by the programme and a Dissertation/Project Report has to be submitted to the Department and a copy of the same has to be submitted to the Central Library.

5. Before the submission of the Dissertation/Project Report to any of the Department, the students shall have to produce a Plagiarism certificate through the respective supervisors where up to 30% plagiarism shall be considered for UG and 20% for PG.

6. Prescribed value added courses in each of the semester or as applicable has to be undergone by students in a programme as a non-credit course but one has to pass the examination to qualify the semester.

7. Summer Training/internship, Seminar, Minor Project, field work, etc. has to be undertaken by the students as prescribed by the programme and respective reports are to be submitted to the Programme Coordinator through the respective course teacher.

8. MOOCs courses are to be opted by the students as prescribed by the programme under the supervision of Programme Coordinators/Mentors.