COLLEGE OF PHYSIOTHERAPY

Minutes of 2nd BoS Meeting

Bachelor of Physiotherapy (BPT)

Venue : AV Hall,
Sri Manakula Vinayagar Engineering College

Date & Time : 14 May 2022 at 10:30 A.M

2.H.1

COLLEGE OF PHYSIOTHERAPY

Minutes of 2nd Board of Studies Meeting

The Second Board of Studies meeting for Bachelor of Physiotherapy (BPT) program in COLLEGE OF PHYSIOTHERAPY was held on **14th May 2022 at 10:30 AM** in the Audio-Visual Hall, Sri Manakula Vinayagar Engineering College.

The following members were present in the BoS meeting

Sl. No	Name of the Member with Designation and official Address	Members as per UGC Norms
1	**Dr. K. ANAND BABU, M.P.T (PhD)** Dean i/c, College of Physiotherapy Sri Manakula Vinayagar Engineering College Madagadipet, Puducherry - 605107	Chairman
2	**Dr. Balu, M.P.T** Professor Arupadaiveedu Medical College, Kirumambakkam,Puducherry - 607403	Subject Expert (University Nominee))
3	**Dr. A.Dinakaran, M.P.T** Principal, Adhiparasakthi College of Physiotherapy, Melmaruvathur - 603319	Subject Expert (Academic Council Nominee)
4	**Dr.KSI. Murali sankar, M.P.T** Director School of Physiotherapy Arupadaiveedu Medical College, Kirumambakkam, Puducherry	Subject Expert (Academic Council Nominee)
5	**Dr.S.D.Lakshmivasan, B.P.T, PG.D.D.T** Chief Physiotherapist, Sri Kumaran Physiotherapist Clinic, Villupuram – 605602	Representative from Industry
6	**Dr. K. Ezhilan, M.P.T** Professor & Head, Physiotherapy Sri Manakula Vinayagar Medical College & Hospital Madagadipet, Puducherry – 605107	Member
7	**Dr. M. Nakkiran, M.P.T** Asst. Professor College of Physiotherapy Sri Manakula Vinayagar Engineering College Madagadipet, Puducherry – 605107	Member

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8	**Dr. S. Anbumalar** Dean Academics, Sri Manakula Vinayagar Engineering College Madagadipet, Puducherry - 605107	Special Invitee
9	**Dr. R. Subramaniyan** Associate Dean – Academics, Sri Manakula Vinayagar Engineering College Madagadipet, Puducherry - 605107	Special Invitee

Agenda of the Meeting

Item No. : BoS / BPT 1.1

Welcome Address, Introduction about the Institution, Department and BoS Members

Item No. : BoS / BPT 1.2

To discuss and approve the corrections in the Regulation 2021 of BPT Bachelor of Physiotherapy

Item No. : BoS / BPT 1.3

To discuss and approve the modification in II semester Curriculum and Syllabi

Item No. : BoS / BPT 1.4

To discuss and approve the BPT Degree Curriculum and Syllabi for III and IV semester for the students admitted under the College of Physiotherapy SMVEC Autonomous Regulations 2021.

Item No. : BoS / BPT 1.5

To discuss and approve the introduction of **Auxiliary course** in all semesters.

Item No. : BoS / BPT 1.6

To discuss and approve Evaluation Systems

- Mark weightage for Internal Assessment and End Semester Examination
- Question paper pattern

Item No. : BoS / BPT 1.7

To discuss and approve the panel of external examiners for I semester exam- June 2022

Item No. : BoS / BPT 1.8

Any other item with the permission of chair

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Minutes of the Meeting

Dr. K. ANAND BABU, M.P.T (PhD) Chairman, BoS welcome the Board members and presented the agenda.

BOS / 2021 / COPT / 1.1

The Chairman, BoS, appraised the agenda and seeking permission of the members of the Board of studies to modify the II semester curriculum, to approve the Curriculum and Syllabi for III and IV semester for the BPT students admitted under the College of Physiotherapy, SMVEC Autonomous Regulations 2021 (R-2021)

The BoS noted the Agenda and permitted to discuss the modification of II semester and for the approval of III and IV semester curriculum and syllabi of Bachelor of Physiotherapy (B.P.T) in College of Physiotherapy, Sri Manakula Vinayagar Engineering College from the academic year 2021.

BOS / 2021 / COPT / 1.2

The BoS approved the SMVEC Autonomous Regulations R2021 for the programme, Bachelor of Physiotherapy (B.P.T) in the College of Physiotherapy with below mentioned modifications

- Modification in the **Objective** was approved by the chair ***Annexure-I (Page No: 12)***
- The word **Sessional Exam** was changed as **Internal Assessment Exam** ***Annexure-I (Page No: 14)***
- The corrections made in the **distribution of marks for attendance** was approved by the chair ***Annexure-I (5 marks split up --Page No: 15)***
- In the criteria for **Passing Minimum** the **Viva-Voce** for theory cum practical courses was changed to separate **Practical courses with new Subject Codes,** which was approved by the chair ***Annexure-I (Page No: 16)***

BOS / 2021 / COPT / 1.3

The BoS approved I and II Semester revised curriculum with further modifications, which are listed below

- In the first semester curriculum, the Non-Examination Course **Physiotherapy Orientation** was changed to **Auxiliary Course** ***(Page No: 18)***
- Viva voce for Anatomy and Physiology courses was changed as **Practical** examination with **New Subject Codes** ***(Page No: 19)***
- **Biomechanics and Kinesiology-I** was newly added to the **core course** ***(Page No: 19)***
- The core courses namely **Environmental studies and Nutrition** was changed as **Auxiliary courses** ***(Page No: 19)***

BOS / 2021 / COPT / 1.4

The BoS approved the curriculum, syllabi for third and fourth semesters Bachelor of Physiotherapy (B.P.T) programme under SMVEC Autonomous Regulations R2021 to be implemented from the academic year 2021-2022.

- Curriculum ***Annexure I (Page No: 20-21)***
- Syllabi for third and fourth semesters of Bachelor of Physiotherapy (B.P.T) programme is given in ***Annexure II (Page No: 31-66)***

BOS/2021,COPT/1.5

- The BoS approved the introduction of **Auxiliary course** in all semesters ***(Page No: 16)***

BOS/2021,COPT/1.6

- BoS approved the mark distribution in the end semester examination for Theory and Practical ***(Page No: 27-29)***
- BoS approved **to conduct the end semester examination for the Auxiliary courses at the department internally and the marks will be submitted to the controller of examination** ***Annexure I (Page No: 16)***

BOS/2021,COPT/1.7

- The BoS chair approved the panel of external examiners for I semester exam- June 2022.

The meeting was concluded at 1 PM. with vote of thanks by

Dr. K. Anand Babu, MPT (PhD) Chairman, Board of Studies, College of Physiotherapy, Sri Manakula Vinayagar Engineering College

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COLLEGE OF PHYSIOTHERAPY

2nd BOARD OF STUDIES MEETING

External and Internal Expert Members Details

Date : 14.05.2022 **Time: 10.30 pm**

Sl. No	Name of the Member with Designation and official Address	Members as per UGC Norms	SIGNATURE
1	**Dr.K. ANAND BABU, M.P.T** Dean i/c, College of Physiotherapy Sri Manakula Vinayagar Engineering College Madagadipet, Puducherry - 605107	Chairman	
2	**Dr. Balu, M.P.T** Professor Arupadaiveedu Medical College, Kirumambakkam,Puducherry - 607403	Subject Expert (University Nominee))	
3	**Dr. A.Dinakaran, M.P.T** Principal, Adhiparasakthi College of Physiotherapy, Melmaruvathur - 603319	Subject Expert (Academic Council Nominee)	
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6	**Dr. K. Ezhilan, M.P.T** Professor & Head, Physiotherapy Sri Manakula Vinayagar Medical College & Hospital Madagadipet, Puducherry – 605107	Member	
7	**Dr. M. Nakkiran, M.P.T** Asst. Professor College of Physiotherapy Sri Manakula Vinayagar Engineering College Madagadipet, Puducherry – 605107	Member	14/5/2022
8	**Dr. S. Anbumalar** Dean Academics, Sri Manakula Vinayagar Engineering College Madagadipet, Puducherry - 605107	Special Invitee	
9	**Dr. R. Subramaniyan** Associate Dean – Academics, Sri Manakula Vinayagar Engineering College Madagadipet, Puducherry - 605107	Special Invitee	

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Annexure – I

COLLEGE OF PHYSIOTHERAPY

Bachelor of Physiotherapy (BPT)

Regulations R-2021

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SRI MANAKULA VINAYAGAR ENGINEERING COLLEGE

(An Autonomous Institution)
Puducherry - 605 107

COLLEGE OF PHYSIOTHERAPY

BACHELOR OF PHYSIOTHERAPY

ACADEMIC REGULATIONS 2021

For the students admitted from the academic year 2021 - 2022

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1. INTRODUCTION

- College of Physiotherapy, Sri Manakula Vinayagar Engineering College (SMVEC) envisions to foster knowledge, skills, attitude and values of the aspiring youth to enable them to become global citizens. To achieve this process, the institution has evolved a flexible integrated academic curriculum designed in accordance with the Outcome Based Education (OBE which is acquired by the learners of a programme under 'Learner Centric' Model.
- The provisions made in this document shall govern the policies, procedures, curriculum, conduct of the examinations and evaluation systems.
- The semester system shall be adopted for academic activities in the college. Normally, odd semester starts in second week of June and even semester starts in second week of December.
- The rules and regulations shall be subjected to amendment made by the Academic Council (AC) from time to time based on the recommendations of the Board of Studies (BoS).

2. PRELIMINARY DEFINITIONS AND NOMENCLATURE

College	:	College of Physiotherapy, Sri ManakulaVinayagar Engineering College
University	:	Pondicherry University
Programme	:	Bachelor of Physiotherapy (B.P.T)
Course	:	Theory / Practical subject that is normally studied in a semester. Eg: Anatomy, Soft tissue Manipulation, etc.,
Head of the Institution	:	The Director cum Principal
Controller of Examinations (CoE)	:	The authority who is responsible for all Examination related activities of the institution
Curriculum	:	The various components / courses studied in each programme that provides an appropriate outcome in the chosen branch of study.
Odd semester	:	The Semester that is typically from June to November
Even semester	:	The Semester that is typically from December to May
Period	:	50 minutes duration of a theory / practical class
Day	:	8 periods in a calendar day
Enrolment	:	Enlistment of a student on roll in an academic year
Arrear	:	A course in which a student has not fulfilled the examination passing criteria in the end semester examination.
COPT	:	College of Physiotherapy
IA	:	Internal Assessment
ESE	:	End Semester Examination
ESM	:	End Semester Examination Marks
Regular Examination	:	End semester examination conducted for the courses prescribed in the curriculum of that semester.
Arrear Examination	:	End Semester examination conducted for the students who have not fulfilled the examination passing criteria in the previous attempt(s).

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Supplementary Examination	:	An additional examination exclusively conducted in the Sixth and eighth semester for the students with a maximum of two arrears.
Academic Council (AC)	:	An Apex academic body having the power to scrutinize and approve the proposals with or without modification of the Board of Studies with regard to courses of study, academic regulations, curricula, syllabi and modifications thereof, instructional and evaluation arrangements, methods, procedures relevant thereto, etc.
Board of Studies (BoS)	:	An Apex academic body having the power to approve the various courses; suggest teaching methodologies, coordinate research and other academic activities keeping in view the objectives of the college.
Academic Standing Committee (ASC)	:	ASC shall perform the functions under emergent situations which are subject to ratification by the Academic Council (AC).
Department Consultative Committee (DCC)	:	Reviews, revises and prepares curriculum structure based on the institutional policy and suggests improvements in syllabus of a course(s) prepared by course teacher(s) and forwards the curriculum to BoS for further recommendations. It monitors the academic progress and conduct of classes throughout the semester and takes appropriate corrective measures to improve the quality of curriculum delivery.
Programme Academic Coordinator (PAC)	:	Coordinates all the academic activities of the department viz. Curriculum revision, framing of syllabus, time table, re-registration of course(s), display and submission of attendance status and BoS meeting as a member secretary.
MHFW	:	Ministry of Health and Family Welfare
UGC	:	University Grants Commission

3. ABOUT THE PROGRAMME

The Bachelor of Physiotherapy (B.P.T) is an undergraduate academic programme in the medical science field of physiotherapy. The duration of the B.P.T course is 4½ years, including a 6 month internship. Physical Therapy Programs such as physiotherapy provide core skills like manual therapy, therapeutic exercise and the application of electro physical modalities to prospective students. The course focuses on the use of physical movements and exercise to improve and cure injuries, deformities and diseases. Physiotherapy does not rely extensively on the use of drugs and medicine. Instead, it relies on the use of physical treatment to restore, maintain and maximize overall well-being.

3.1 Objective

- To impart an in-depth knowledge and skills required to become competent in various techniques and attitudes required for independent practice of Physiotherapy Profession.
- To produce the graduates with excellent communication skills who are to function as independent clinicians and as fully interactive members of the multi-disciplinary health care team.

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3.2 Salient Features

- To train students to work as independent physiotherapists or in conjunction with a multidisciplinary team to diagnose and treat movement disorders.
- Skills in the graduate's physical/ functional diagnosis, treatment planning, management, administration of physiotherapy treatment, and patient support.
- Graduates can find employment opportunities in hospitals, nursing homes, sports teams, fitness centers, community rehabilitation, planning boards, and health promotion services in both the private and public sectors, as well as in independent physiotherapy clinics.
- Graduates will function as active members of professional and community organizations.
- The graduate will be a service-oriented advocate dedicated to the promotion and improvement of community health.
- The graduate will demonstrate lifelong commitment to learning and professional development.

4. ELIGIBILITY FOR ADMISSION

- Candidates should have a pass in the Higher Secondary Examination (academic) conducted by the Board of Higher Secondary Examination of Tamil Nadu, or any other equivalent examination accepted by the University, thereto with a minimum of 50% marks (40% for SC, ST, MBC, OBC candidates) in aggregate of the Science subjects (Physics, Chemistry, Biology/ Botany & Zoology) and should have English as one of the subjects.
- Candidate shall be medically fit to undergo the Physiotherapy Programme and Medical Fitness Certificate from a Government Hospital should be produced at the time of admission.

Selection of the candidates should be based on the norms of the competent authority.

4.1 Age Limit

Candidates should have completed a minimum of 17 years of age as on 31st December of the year of admission. The upper age limit is 25 years. (Relaxable up to 5 years for SC/ST candidate and upto 3 years for MBC/OBC candidates)

5 DURATION OF THE PROGRAMME

- The duration of the programme shall be ***four years*** of full time study and ***six months*** of compulsory rotatory internship.
- The duration of the program shall be four academic years comprising of 8 semesters, and 6 months of compulsory rotatory internship. However a student may complete the program at a slower pace of taking more time but in any case not more than 8 years including internship from the date of admission.

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6 MEDIUM OF INSTRUCTION

English shall be the medium of instruction for all the subjects of study and for the examinations of the programme.

7 EDUCATIONAL METHODOLOGY

Learning occurs by attending didactic lectures, as part of regular work, from co-workers and senior faculty, through training offered in the workplace, through reading or other forms of self-study, using materials available through work, using materials obtained through a professional association or union, using materials obtained on student's own initiative, during working hours at no cost to the student.

8 ACADEMIC CALENDAR

Each semester shall consist of not less than 90 working days.

- 1st semester will commence from 1st week of July and 3rd, 5th, 7th (Odd) semesters from June in every academic year.
- The 2nd, 4th, 6th and 8th (Even) semesters shall commence from December in every academic year.

9 CURRICULUM STRUCTURE

Each Course (subject) shall be designed under lectures / laboratory or field work / seminar / practical training /outreach activities / Assignments / Term paper or Report writing or a combination of some of these to meet effective teaching and learning needs.

The curriculum structure is shown in Table I. The detailed syllabus in respect of the programme is appended to this regulation.

10 INTERNAL ASSESSMENT (THEORY)

The Internal assessment will be conducted and marks awarded to the candidate for the subjects which are detailed in the Scheme of Examination (Table-III).

▪ 2 Internal Assessment exam+1 Model exam (4+4+7)	= 15 marks
▪ Assignments/ Seminars/ curricular activities	= 5 marks
▪ Attendance during the period	= 5 marks*
Total	= 25 **marks**

*The distribution of 5 marks for attendance is as follows:

5 marks for 99% attendance and above
4 marks for 95% attendance and above but below 99%
3 marks for 90% attendance and above but below 95%
2 marks for 85% attendance and above but below 90%
1 mark for 80% attendance and above but below 85%

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11 BREAK OF STUDY FROM THE PROGRAMME

A student shall be permitted to withdraw temporarily from the college for the reason beyond his/her control. The applicable rules are:

- After withdrawal, the student shall rejoin next year in the same semester during which the student has withdrawn.
- The student shall apply to Dean Academics through Dean (COPT) stating the reasons for withdrawal along with supporting documents, consent letter from his/her parent/guardian and clearance/no due from all the concerned departments.
- Dean Academics shall examine the case and recommend for the approval/ratification from Academic Council (AC) /Academic Standing Committee (ASC).
- A student availing temporary withdrawal from the college under the above provision shall be required to pay such fees and/or charges as may be fixed by the AC/ASC for his/her name to be enrolled. However, it may be noted that the fees/charges once paid shall not be refundable.
- The total period of completion of the programme reckoned from the commencement of the first semester to which the candidate was admitted shall not exceed 8 years including the period of discontinuance.

11.1 Re-admission after Break of Study

- Candidates having a break of study of five years and above from the date of admission / more than two spells of break will not be considered for readmission
- The five years period of break of study shall be calculated from the date of first admission of the candidate to the course for the subsequent spells of break of study
- Candidates having break of study shall be considered for re admission provided that they are not subjected to any disciplinary action and no charges are pending or contemplated against them.
- All re admissions of candidates are subjected to the approval of the Head of the Institution.

11.2 REQUIREMENTS FOR EXAMINATIONS AND ATTENDANCE

Examination will be conducted in both theory and practical, as prescribed in Scheme of Examination. Candidates will be permitted to appear for the End Semester Examination in the subject only if they secure not less than 80% attendance (irrespective of the kind of absence) in each semester.

12 EXAMINATIONS

The End Semester Examinations will be conducted in the semester pattern for all the four years, each year consisting of two semesters. The particulars of subjects for various examinations and distribution of marks are shown separately in the Scheme of Examination (Table III).

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12.1 Attendance required to appear End Semester Examinations

Candidate is required to have a minimum of 80% of attendance in each semester to appear in end semester examinations.

12.2 Passing Minimum

A candidate should secure 50% of the marks in theory and 50% in practical (wherever prescribed) separately and 50% in aggregate in each paper. If a candidate fails in either theory or practical, he/she has to re-appear for both theory and practical.

12.3 SUPPLEMENTARY EXAMINATIONS

Supplementary Examination is an additional examination, which will be conducted after declaration of the end semester examination results/revaluation results. This examination will be conducted in sixth and eighth semesters for the students who are having a maximum of two arrears only. For supplementary examination, the continuous assessment marks of the last attempt will be considered.

13 AUXILIARY COURSES

The Auxiliary courses are provided to enhance the knowledge and skill set of the students.

The Auxiliary Courses included in the curriculum are Physiotherapy Orientation, Nutrition, Environmental Studies, Therapeutic Yoga, First Aid and Basic Life Support, Physiotherapy ethics, Evaluation Measurement and Outcome Measures, Diagnostic Imaging for Physiotherapist, Principles of Management, Case Presentation and Discussion, Health Promotion and Fitness, Research Methodology and Bio-statistics, Veterinary Physiotherapy, Clinical reasoning and evidence based practice, Education Technology. The End Semester Examination will be conducted at the Department level and the Marks will be submitted to the Controller of Examination

14 INTERNSHIP

The candidate shall be eligible for internship program only after successful completion of all the courses till eight semesters as per the curriculum.

There shall be a compulsory full-time rotatory internship after the candidate having passed all the subjects prescribed in the scheme of examination. The compulsory full-time rotatory internship should be done for a period of six months, and not less than 180 days, in an Institution/ Hospital approved by the Institution. No candidate shall be eligible for the award of the degree without successfully completing the six months of internship.

The internship should be completed within one year from the date of commencement of internship, and however should be started within one year of after passing the final examinations. No candidate shall be eligible for the award of the degree without successfully completing the six months of internship.

The internship training areas related to Physiotherapy are mentioned in Table II

The internship training areas related to Physiotherapy are mentioned in Table II.

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15 ELIGIBILITY FOR AWARD OF THE DEGREE

The candidates shall be eligible for the Degree of Bachelor of Physiotherapy when they have undergone the prescribed programme of study for a period of not less than four years in an institution and have passed the prescribed examinations in all subjects and have completed a compulsory internship over a period of six months in an approved institution, after having passed the final examination.

However, the candidates who are under break of study are eligible for the award of the degree after completion of all the courses and internships within the maximum stipulated period of eight years.

16 DECLARATION OF CLASS

- ***Distinction***
  A successful candidate obtaining 75% and more marks in the grand total aggregate in the first attempt shall be declared to have passed these subjects with *distinction*.
- ***First Class***
  A successful candidate obtaining 60% and more but less than 75% of the marks in the grand total aggregate in the first attempt shall be declared to have passed with *first class*.
- ***Second Class***
  A successful candidate obtaining 50% and more but less than 60% of the marks in the grand total aggregate in the first attempt, and, a candidate who passes in more than one attempt irrespective of the percentage of marks secured shall be declared to have passed these subjects with *second class*.
- ***Award of Ranking***
  Ranks shall be declared based on the aggregate marks obtained by a candidate in the End Semester Examination subjects of the programme. Only those candidates who have passed all the subjects in all examinations in the first attempt shall be eligible for the award of rank by the institution.

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Table I: CURRICULUM STRUCTURE

I (a). FIRST YEAR (1150 hrs)

Semester – I

Sl. No.	Course Code	Course Name	Theory (in hours)	Practical (in hours)	Total (in hours)
Core Courses-Theory					
1.	U21BPTT101	Psychology (General and Health)	130	-	130
2.	U21BPTT102	Sociology	130	-	130
3.	U21BPTT103	Functional English	80	20	100
4.	U21BPTT104	Computer and its applications	40	60	100
Auxiliary Courses*					
5.	U21BPTT105	Physiotherapy Orientation	50	-	50
Non-Examination Courses*					
6.	U21BPTP106	Physical Education	-	40	40
				Total Hours	**550**
*** End Semester Examination will be Conducted at the Department and the Marks will be submitted to the Controller of Examination**					

Semester – II

Sl. No.	Course Code	Course Name	Theory (in hours)	Practical (in hours)	Total (in hours)
Core Courses-Theory					
1.	U21BPTT207	Anatomy (Systemic and Regional)	135	-	135
2.	U21BPTT208	Physiology	135	-	135
3.	U21BPTT209	Biomechanics and kinesiology I	90	30	120
Core Courses-Practical					
4.	U21BPTP210	Anatomy Practical	-	60	60
5.	U21BPTP211	Physiology Practical		60	60
Auxiliary Courses*					
6.	U21BPTT212	Nutrition	45	-	45
7.	U21BPTT213	Environmental Studies	45	-	45
				Total Hours	**600**

*** End Semester Examination will be Conducted at the Department and the Marks will be submitted to the Controller of Examination**

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(b).SECOND YEAR (1200 hrs)

Semester – III

Sl. No.	Course Code	Course Name	Theory (in hours)	Practical (in hours)	Total (in hours)
Core Courses-Theory					
1.	U21BPTT314	Microbiology & Pathology	90	-	90
2.	U21BPTP315	Biochemistry & Pharmacology	90	-	90
3.	U21BPTT316	Biomechanics and Kinesiology II	90	-	90
4.	U21BPTT317	Exercise therapy - Basics & Soft tissue Manipulation	60	-	60
Core Courses-Practical					
5.	U21BPTT318	Biomechanics and Kinesiology Practical	-	60	60
6.	U21BPTP319	Exercise therapy - Basics & Soft tissue Manipulation Practical	-	120	120
Auxiliary Courses*					
7.	U21BPTT320	Therapeutic Yoga	15	30	45
8.	U21BPTP321	BLS and First aid	15	30	45
				Total Hours	**600**

*** End Semester Examination will be Conducted at the Department and the Marks will be submitted to the Controller of Examination**

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Semester – IV

Sl. No.	Course Code	Course Name	Theory (in hours)	Practical (in hours)	Total (in hours)
Core Courses-Theory					
1.	U21BPTT422	Exercise Therapy – Advanced	60	-	60
2.	U21BPTP423	Electrotherapy – I (LF & MF)	60	-	60
3.	U21BPTT424	Electrotherapy II (HF)	75	-	75
4.	U21BPTP425	Basic physics for Physiotherapy	45	-	45
Core Courses-Practical					
5.	U21BPTT426	Exercise Therapy – Advanced Practical	-	120	120
6.	U21BPTP427	Electrotherapy – I (LF & MF) Practical	-	90	90
7.	U21BPTT428	Electrotherapy II (HF) Practical	-	90	90
Auxiliary Courses*					
8.	U21BPTT429	Physiotherapy ethics	15	-	15
9.	U21BPTP430	Clinical Observation	-	45	45
				Total Hours	**600**

*** End Semester Examination will be Conducted at the Department and the Marks will be submitted to the Controller of Examination**

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I (c).THIRD YEAR (1200 hours)

Semester – V

Sl. No.	Course Code	Course Name	Theory (in hours)	Practical (in hours)	Total (in hours)
Core Courses-Theory					
1.	U21BPTT531	Clinical Orthopedic & Traumatology for Physiotherapist	120	-	120
2.	U21BPTT532	General Surgery, Plastic Surgery and OBG	90	-	90
3.	U21BPTT533	General Medicine, Paediatic and Psychiatric	120	-	120
	U21BPTT534	Community Medicine	90	-	90
Auxiliary Courses*					
4.	U21BPTP535	Evaluation Measurement and Outcome Measures	45	-	45
5.	U21BPTP536	Diagnostic Imaging for Physiotherapist	30	15	45
6.	U21BPTP537	Observation on clinical conditions	-	90	90
				Total Hours	**600**

*** End Semester Examination will be Conducted at the Department and the Marks will be submitted to the Controller of Examination**

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Semester – VI

Sl. No.	Course Code	Course Name	Theory (in hours)	Practical (in hours)	Total (in hours)
Core Courses-Theory					
1.	U21BPTP638	Physiotherapy in Orthopedic Conditions	90	-	90
2.	U21BPTP639	Physiotherapy in General Medicine and General Surgery	60	-	60
3	U21BPTP640	Clinical Neurology and Neurosurgery for Physiotherapist	75	-	75
Core Courses-Practical					
4.	U21BPTP641	Physiotherapy in Orthopedic Conditions Practical	-	90	90
5	U21BPTP642	Physiotherapy in General Medicine and General Surgery Practical	-	90	90
Auxiliary Courses*					
6.	U21BPTP643	Principles of Management	30	-	30
7.	U21BPTP644	Case Presentation and Discussion	-	45	45
8.	U21BPTP645	Health Promotion and Fitness	15	15	30
9.	U21BPTP646	Clinical Training	-	90	90
				Total Hours	600
*** End Semester Examination will be Conducted at the Department and the Marks will be submitted to the Controller of Examination**					

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I (d) FOURTH YEAR (1200 hrs)

Semester – VII

Sl. No.	Course Code	Course Name	Theory (in hours)	Practical (in hours)	Total (in hours)
Core Courses-Theory					
1.	U21BPTP747	Physiotherapy in Neurological Disorder	90	-	90
3.	U21BPTP748	Clinical Cardio-respiratory conditions	90	-	90
4.	U21BPTP749	Community Physiotherapy – I	60	-	60
5.	U21BPTP750	Physiotherapy in Obstetrics and Gynecology	75	15	90
Core Courses-Practical					
6.	U21BPTP751	Physiotherapy in Neurological Disorder Practical	-	90	90
Auxiliary Courses*					
7.	U21BPTP752	Research Methodology and Bio-statistics	45	-	45
8.	U21BPTP753	Veterinary Physiotherapy	15	-	15
9.	U21BPTP754	Case Presentation and Discussion	30	-	30
10.	U21BPTP755	Clinical Training	90	-	90
				Total Hours	600

*** End Semester Examination will be Conducted at the Department and the Marks will be submitted to the Controller of Examination**

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Semester – VIII

Sl. No.	Course Code	Course Name	Theory (in hours)	Practical (in hours)	Total (in hours)
Core Courses-Theory					
1.	U21BPTP856	Community Physiotherapy – II	60	-	60
2.	U21BPTP857	Physiotherapy in Cardio-respiratory conditions	90	-	90
3.	U21BPTP858	Sports Physiotherapy	45	15	60
Core Courses-Practical					
4.	U21BPTP859	Physiotherapy in Cardio-respiratory conditions Practical	-	90	90
5.	U21BPTP860	Research Project	-	90	90
Auxiliary Courses*					
6.	U21BPTP861	Clinical reasoning and evidence based practice	30	-	30
7.	U21BPTP862	Case/Journal Presentation	-	60	60
8.	U21BPTP863	Education Technology	30	-	30
9.	U21BPTP864	Clinical Training	90	-	90
				Total Hours	**600**

*** End Semester Examination will be Conducted at the Department and the Marks will be submitted to the Controller of Examination**

TABLE - II

COMPULSORY ROTATORY INTERNSHIP

The candidates should undergo compulsory rotatory internship training in the following departments/specialties* of Physiotherapy for the duration prescribed against each.

1.	Orthopaedics	- 20 days
2.	Neurology & Neurosurgery	- 20 days
3.	Cardiology	- 20 days
4.	Physiotherapy & Rehabilitation	- 15 days
5.	Critical care units	- 15 days
6.	General Medicine	- 15 days
7.	General & Plastic Surgery	- 15 days
8.	Obstetrics & Gynaecology	- 15 days
9.	Paediatrics & Paediatric surgery	- 15 days
10.	Community Physiotherapy	- 15 days
11.	Elective (any one of the above, or Sports Physiotherapy)	- 15 days
	Total	**180 days**

*The above listed departments are not limited and it can be extended to any other advanced facilities available, which has to be decided by Dean, COPT.

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Table- III

BACHELOR OF PHYSIOTHERAPY

SCHEME OF END SEMESTER EXAMINATION

(The End Semester Examination will be conducted for the duration of 3 hours)

Semester - I

Course Code	Course Name	Theory			Practical		Grand Total	
		Internal Marks	Passing Min.	Max. Marks	Passing Min.	Max. Marks	Passing Min.	Max. Marks
U21BPTT101	Psychology (General and Health)	25	38	75	-	-	50	100
U21BPTT102	Sociology	25	38	75	-	-	50	100
U21BPTT103	Functional English	25	38	75	-	-	50	100
U21BPTT104	Computer and its Applications	25	38	75	-	-	50	100
U21BPTT105	Physiotherapy Orientation *	25	38	75	-	-	50	100
U21BPTP106	Physical Education	-	-	-	-	-	-	-

*** End Semester Examination will be Conducted at the Department and the Marks will be submitted to the Controller of Examination**

Semester – II

Course Code	Course Name	Theory			Practical		Grand Total	
		Internal Marks	Passing Min.	Max. Marks	Passing Min.	Max. Marks	Passing Min.	Max. Marks
U21BPTT207	Anatomy (Systemic and Regional)	25	38	75	-	-	50	100
U21BPTT208	Physiology	25	38	75	-	-	50	100
U21BPTT209	Biomechanics and kinesiology I	25	38	75	-	-	50	100
U21BPTP210	Anatomy Practical	20	-	-	40	80	50	100
U21BPTP211	Physiology Practical	20	-	-	40	80	50	100
U21BPTT212	Nutrition*	25	38	75	-	-	50	100
U21BPTT213	Environmental Studies*	25	38	75	-	-	50	100

*** End Semester Examination will be Conducted at the Department and the Marks will be submitted to the Controller of Examination**

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Semester – III

Course Code	Course Name	Theory			Practical		Grand Total	
		Internal Marks	Passing Min.	Max. Marks	Passing Min.	Max. Marks	Passing Min.	Max. Marks
U21BPTT314	Microbiology & Pathology	25	38	75	-	-	50	100
U21BPTT315	Biochemistry & Pharmacology	25	38	75	-	-	50	100
U21BPTT316	Biomechanics and Kinesiology II	25	38	75	-	-	50	100
U21BPTT317	Exercise therapy - Basics & Soft tissue Manipulation	25	38	75	-	-	50	100
U21BPTT318	Biomechanics and Kinesiology Practical	20	-	-	40	80	20	100
U21BPTP319	Exercise therapy - Basics & Soft tissue Manipulation Practical	20	-	-	40	80	20	100
U21BPTT320	Therapeutic Yoga*	25	38	75	-	-	50	100
U21BPTP321	BLS & First aid*	100	-	-	-	-	50	100
*** End Semester Examination will be Conducted at the Department and the Marks will be submitted to the Controller of Examination**								

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Semester – IV

Course Code	Course Name	Theory			Practical		Grand Total	
		Internal Marks	Passing Min.	Max. Marks	Passing Min.	Max. Marks	Passing Min.	Max. Marks
U21BPTT422	Exercise Therapy – Advanced	25	38	75	-	-	50	100
U21BPTP423	Electrotherapy – I (LF & MF)	25	38	75	-	-	50	100
U21BPTT424	Electrotherapy II (HF)	25	38	75	-	-	50	100
U21BPTP425	Basic physics for Physiotherapy	25	38	75	-	-	50	100
U21BPTT426	Exercise Therapy – Advanced Practical	20	-	-	40	80	20	100
U21BPTP427	Electrotherapy – I (LF & MF) Practical	20	-	-	40	80	20	100
U21BPTT428	Electrotherapy II (HF) Practical	20	-	-	40	80	20	100
U21BPTT429	Physiotherapy ethics	25	38	75	-	-	50	100
U21BPTP430	Clinical Training	100	-	-	-	-	50	100
*** End Semester Examination will be Conducted at the Department and the Marks will be submitted to the Controller of Examination**								

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QUESTION PAPER PATTERN

Maximum 3 hours | Maximum 75 marks

Answer Section-A and Section-B separately.
Draw labeled diagrams wherever applicable.

SECTION – A

(40 Marks)

I. Essay question: (1 x 10 = 10)

(1)

or

(2)

II. Write short notes on any ***six*** of the following: (6 x 5 = 30)

3.
4.
5.
6.
7.
8.
9.

SECTION – B

(35 Marks)

III. Essay question: (1 x 10 = 10)

(10)

or

(11)

IV. Write short notes on any ***five*** of the following: (5 x 5 = 25)

12
13
14
15
16
17

Note:

S. No	Course code	Course Name	SECTION-A	SECTION-B
1	U21BPTT101	Psychology	General	Health
2	U21BPTT207	Anatomy	Regional	Systemic
3	U21BPTT314	Microbiology & Pathology	Microbiology	Pathology
3	U21BPTT315	Pharmacology & Biochemistry	Pharmacology	Biochemistry

Except the above papers, in all other papers the subjects will be covered in both sections.

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Annexure – II

COLLEGE OF PHYSIOTHERAPY

Bachelor of Physiotherapy (BPT)

II YEAR SYLLABI

R-2021

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SEMESTER III

MICROBIOLOGY

U21BPTT315 **Instruction hours: Theory** 37 hours

Practical 8 hours

Unit	Hrs (T+P)	Content	Teaching method	
I	8+0	**General Microbiology -** a. Definitions: infections, parasite, host, vector, fomite, contagious disease, infectiousdisease, epidemic, endemic, pandemic, Zoonosis, Epizootic, Attack rate. b. Normal flora of the human body. a. Routes of infection and spread; endogenous and exogenous infections; source atreservoir of infections. b. Bacterial cell. Morphology limited to recognizing bacteria in clinical samples Shape,motility and arrangement. Structures, which are virulence, associated. c. Physiology: Essentials of bacterial growth requirements. d. Sterilization, disinfection and universal precautions in relation to patient care and diseaseprevention. Definition of asepsis, sterilization, disinfection. e. Antimicrobials: Mode of action, interpretation of susceptibility tests, resistance spectrumof activity.	Lecture Discussion, Demonstration	
II	5+1	**Immunology -** a. Basic principles of immunity immunobiology: lymphoid organs and tissues. Antigen, Antibodies, antigen and antibody reactions with relevance to pathogenesis and serological diagnosis. b. Humoral immunity and its role in immunity Cell mediated immunity and its role in immunity. Imunology of hypersensitivity, measuring immune	Lecture Discussion, Demonstration & Practicals	

2.4.59

		functions.		
III.	9+3	**Bacteriology -** a. To be considered under the following headings b. Morphology, classification according to pathogenicity, mode of transmission, methods of prevention, collection and transport of samples for laboratory diagnosis, interpretation of laboratory reports. c. Staphylococci, Streptococci and Pneumococci. d. Mycobacteria: Tuberculosis, M.leprae, atypical mycobacteria, Enterobacteriaceae, e. Vibrois: V. cholerae and other medically important vibrios, Campylobacters and Helicobacters, Pseudomonas. f. Bacillus anthracis, Sporing and non-sporing anaerobes: Clostridia, Bacteroides and Fusobacteria.	Lecture Discussion, Demonstration & Practicals	
IV	4+0	**General Virology -** a. General properties: Basic structure and broad classification of viruses. Pathogenesis and pathology of viral infections. Immunity and prophylaxis of viral diseases. Principles of laboratory diagnosis of viral diseases. List of commonly used antiviral agents.	Lecture Discussion, Demonstration & Practicals	
V.	4+2	**Mycology -** a. 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.	Lecture Discussion, Demonstration & Practicals	

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VI.	7+2	1. Clinical/Applied Microbiology - a. Streptococcal infections: Rheumatic fever and Rheumatic heart disease, Meningitis. b. Tuberculosis, c. Pyrexia of unknown origin, leprosy, d. Sexually transmitted diseases, Poliomyelitis, e. Hepatitis, f. Acute-respiratory infections, Central nervous System infections, Urinary tract infections, g. Pelvic inflammatory disease, Wound infection, Opportunistic infections, HIV infection, h. Malaria, Filariasis, Zoonotic diseases	Lecture Discussion, Demonstration & Practicals	

PRACTICAL

1. Demonstration of Microscopes and its uses
2. Principles, uses and demonstration of common sterilization equipment
3. Demonstration of common culture media
4. Demonstration of motility by hanging drops method
5. Demonstration of Gram Stain, ZN Stain
6. Demonstration of Serological test: ELISA
7. Demonstration of Fungus

2. H. 61

PATHOLOGY

Course Code: U21BPTT316 **Instruction hours: Theory** 40 hours

Practical 5 hours

S. No	Hours T+P	Content	Teaching method
		GENERAL PATHOLOGY	
1	5+0	**INTRODUCTION** Introduction to Pathology, Reversible, irreversible injury (Necrosis) Pigments Cell injury and Adaptation , Inflammation [Acute &Chronic] Wound healing & Repair	Lecture Discussion
2	3+0	**IMMUNOLOGY** Hypersensitivity reactions Amyloidosis Autoimmune disease (SLE)	Lecture Discussion
2	3+0	**INFECTIONS** Mycobacterial disease – Tb,Leprosy,Syphilis Viral disease (Polio), Parasites (Amoebiasis, Malaria,Filaria) AIDS	Lecture Discussion
4	3+0	**HEMODYNAMICS** Edema and chronic venous congestion Infarction & Shock Thrombosis & Embolism	Lecture Discussion
5	1+0	**BLOOD BANKING** Blood Transfusion- Blood grouping, Typing, TTI, Transfusion Reaction, Blood components.	
6	3+0	**NEOPLASIA –** Definition, D/W benign & malignant, Metastasis Carcinogenesis, precancerous lesion	Lecture Discussion
7	1+0	**GENETICS** Down syndrome,Kleinfelter syndrome, Turner syndrome	Lecture Discussion
8	2+0	**NUTRITION** Nutritional deficiencies PEM, Vitamin A and D deficiency	Lecture Discussion
9	4+0	**BLEEDING AND PLATELET DISORDERS** Bleeding & Coagulation disorders Anaemia- Definition, Classification Hemolytic anaemias Leukemia (AML,CLL,CML), MM Lymphoma & Causes of splenomegaly	Lecture Discussion

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		S SYSTEMIC PATHOLOGY	
10	2+0	**RESPIRATORY SYSTEM** Pneumonia, Tuberculosis Lung COPD, Lung cancer	Lecture Discussion
11	2+0	**CVS** Congenital heart disease, Rheumatic heart disease Atherosclerosis, IHD, Hypertensive heart disease	Lecture Discussion
12	3+0	**GIT** Gastritis, Peptic ulcer & Gastric Tumors Intestine- Polyps & Carcinoma Salivary gland & oesophageal lesion	Lecture Discussion
13	2+0	**HEPATOBILIARY** Jaundice & Hepatitis ALD, Cirrhosis, Liver Tumours	Lecture Discussion
14	1+0	**CNS[** central nervous system] Meningitis & CNS Tumour	Lecture Discussion
15	2+0	**ENDOCRINE** Exocrine & Endocrine lesions of pancreas Benign & Malignant lesions of Thyroid	Lecture Discussion
16	3+0	**BONE** Osteomyelitis, Bone Tumour Calcification, Intracellular accumulation Arthritis & Paget's disease	Lecture Discussion
		PRACTICALS	
17	0+5	Blood grouping & Typing Urine – Sugar & Ketone bodies Gross – Cholelithiasis, Cirrhosis, Hydatid cyst, Tb lung, Lipoma, Giant cell tumour M/E – Granuloma, Cavernous Hemangioma, Teratoma, Squamous cell carcinoma PS – (Iron deficiency anemia/Malaria/Leukemia)	Demonstration & Practicals

PRACTICALS:

Demonstration of Slides – The students may be demonstrated the common histopathological, hematological and cytological slides and specimens and charts and their interpretations

BIOCHEMISTRY

2. H. 63

Course Code: U21BPTT317

Instruction hours: Theory 30 hours

Practical 15 hours

Unit	Hrs T	Content	Teaching method
I	2	**Cell:** Structure and function of Plasma membrane, Structure and functions of cell organelles, Membrane transport mechanisms	Lecture Discussion, Demonstration & Practicals
II	7	**Carbohydrates** Chemistry: Definition, Classification, functions of Carbohydrates, Composition and functions of Proteoglycans Metabolism: Glycolysis, TCA cycle (Krebs cycle), Gluconeogenesis, Glycogen metabolism, Glycogen storage disorders, Blood Glucose regulation, Diabetes Mellitus and its laboratory investigations.	Lecture Discussion, Demonstration & Practicals
III	6	**Lipid** Chemistry: Definition, Classification, biomedical importance of Lipids, Classification of Fatty acids, Essential fatty acid, Functions of Phospholipids, Structure and functions of Cholesterol, Names and functions of Bile salts, Types and functions Lipoproteins, Functions of prostaglandins	Lecture Discussion, Demonstration & Practicals
IV	4	**Proteins** Chemistry: Classification of amino acids, Essential amino acids, Functional classification of proteins, Plasma proteins and their function Metabolism: Urea cycle, Special products of Glycine, Phenylalanine, tyrosine, tryptophan, Arginine	Lecture Discussion, Demonstration & Practicals

2.H.64

V	2	**Muscle Biochemistry** Composition, Structure and disorders related to collagen, Elastin, Muscle contraction, Source of energy during fasting and fed state, Cori's cycle, Glucose-alanine cycle	Lecture Discussion, Demonstration & Practicals
VI	5	**Enzymes:** Definition, Classification, Co-enzymes, Factors affecting enzyme activity, Enzyme inhibition, Diagnostic and therapeutic uses of enzymes, Clinical enzymology	Lecture Discussion, Demonstration & Practicals
VII	10	**Vitamins and Minerals:** Sources, Daily intake (RDA), functions and deficiency manifestations of fat soluble vitamins. Sources, Daily intake (RDA), functions and deficiency manifestations of water soluble vitamins. Functions and deficiency manifestations of calcium, phosphorous, iron, zinc, copper, sodium, potassium, selenium, fluoride	Lecture Discussion, Demonstration & Practicals
VIII	2	**Electron Transport chain:** High energy phosphates, ATP-ADP cycle, Oxidative phosphorylation, Un Couplers	Lecture Discussion, Demonstration & Practicals
IX	3	**Nutrition:** Calorie and Calorific value, Respiratory quotient, Basal Metabolic rate, Specific dynamic action, Calculation of energy requirements, Dietary fiber, Glycemic index, Nitrogen balance, Limiting amino acid and mutual supplementation, Protein calorie malnutrition	Lecture Discussion, Demonstration & Practicals
X	3	**Acid base balance and imbalance:** Definition, normal range, regulation of pH, Acid base disorders	Lecture Discussion, Demonstration & Practicals
XI	1	**Free radicals and antioxidants** Definition & examples. Sources of free radical formation & Antioxidants Role of free radicals in the development of diseases	Lecture Discussion, Demonstration & Practicals

Recommended text books:

1. Concise textbook of Biochemistry for Paramedical Student-DM Vasudevan

9. H. 65

PHARMACOLOGY

U21BPTT317 **Instruction hours: Theory** 45 hours

Unit	Hrs T	Content	Teaching method,
1	4	**General Pharmacology:** 1. Introduction (General Principles of pharmacology) 2. Pharmacokinetics 3. Pharmacodynamics 4. Adverse effects and factors modifying drug action	Lecture Discussion,
2	4	**Autonomic Nervous System:** 1. Introduction 2. Cholinergic drugs 3. Anticholinergics 4. Adrenergicdrugs 5. Antiadrenergics	Lecture Discussion,
3	5	**Cardiovascular System:** 1. Drugs for Hypertension 2. Ischemic heart disease 3. Drugs for the treatment of heart failure 4. Antiarrhythmic drugs	Lecture Discussion,
4	8	**Central Nervous System +Peripheral Nervous System:** 1. Sedatives 2. Mood disorders 3. Antipsychotics 4. Anti-parkinsonism and Anti-Alzheimer drugs 5. Skeletal muscle relaxants 6. Local anaesthetics 7. Alcohol and Antiepileptics 8. General anaesthetics	Lecture Discussion,
5	5	**Endocrine:** 1. Diabetes mellitus 2. Drugs for Thyroid disorders 3. Drugs for Ca^{2+}balance 4. Progesterone and oestrogen	Lecture Discussion,

2. H. 66

		5. Androgens and anabolic steroids	
6	5	**Inflammation:** 1. NSAIDs 2. Glucocorticoids 3. Drugs for Rheumatoid arthritis 4. Drugs forOsteoarthritis and gout 5. Neuromuscular inflammatory disorders	Lecture Discussion,
7	2	**Respiratory System:** 1. Drugs for Bronchial asthma and COPD 2. Allergic rhinitis and antitussives	Lecture Discussion,
8	2	**Gastrointestinal Tract:** 1. Peptic Ulcer 2. Drugs for constipation and diarrhea	Lecture Discussion,
9	3	**Blood:** 1. Hypolipidemic drugs 2. Anticoagulants 3. Anaemia	Lecture Discussion,
10	1	**Geriatrics**	Lecture Discussion,
11	1	**Vitamins**	Lecture Discussion,
12	2	**Cancer Chemotherapy**	Lecture Discussion,
13	1	**Narrow spectrum antibiotics**	Lecture Discussion,
14	1	**Broad spectrum antibiotics**	Lecture Discussion,
15	1	**Topical antibiotics**	Lecture Discussion,

9. H.67

BIOMECHANICS AND KINESIOLOGY-II

Course Code: U21BPTT318 **Instruction hours:** Theory – 90 hours

Unit	Hrs T+P	Content	Teaching method
I	10	**Biomechanics of the vertebral column -** • General structure and function • Regional structure and function – Cervical region, thoracic region, lumbar region, sacral region • Muscles of the vertebral column • General effects of injury and aging	Lecture Discussion, Demonstration & Practicals
II	50	**Biomechanics of the peripheral joints -** a. The hip complex: structure and function of the hip joint; hip joint pathology- arthrosis, fracture, bony abnormalities of the femur: b. The knee complex: structure and function of the knee joint – tibiofemoral joint and patellofemoral joint; effects of injury and disease. c. The ankle and foot complex.: structure and function of the ankle joint, subtalar joint, talocalcaneonavicular joint, transverse tarsal joint, tarsometatarsal joints, metatarsophalangeal joints, interphalangeal joints, structure and function of the plantar arches, muscles of the ankle and foot, deviations from normal structure and function – Pes Planus and Pes Cavus.	Lecture Discussion, Demonstration & Practicals
III.	30	**Analysis of Posture and Gait –** Static and dynamic posture, postural control, kinetics and kinematics of posture, ideal posture analysis of posture, effects of posture on age, pregnancy, occupation and recreation; general features of gait, gait initiation, kinematics and kinetics of gait, energy requirements, kinematics and kinetics of the trunk and upper extremities in relation to gait, stair case climbing and running, effects of age, gender, assistive devices, disease, muscle weakness, paralysis, asymmetries of the lower extremities, injuries and malalignments in gait;Movement Analysis : ADL activities like sitting – to standing, lifting, various grips , pinches.	Lecture Discussion, Demonstration & Practicals

2.H.68

EXERCISE THERAPY - BASICS & SOFT TISSUE MANIPULATION

Course Code: U21BPTT319 **Instruction hours:** Theory – 60 hours

Unit	Hrs	Content	Teaching method
I	3	**Introduction to Exercise Therapy** - The aims of Exercise Therapy, The techniques of Exercise Therapy, Approach to patient's problems, Assessment of patient's condition – Measurements of Vital parameters, Starting Positions – Fundamental positions & derived Positions, Planning of Treatment	Lecture Discussion, Demonstration & Practicals
II	6	**Methods of Testing** a. Functional tests b. Measurement of Joint range: ROM-Definition, Normal ROM for all peripheral joints & spine, Goniometer-parts, types, principles, uses, Limitations of goniometry, Techniques for measurement of ROM for all peripheral joints c. Tests for neuromuscular efficiency i. Electrical tests ii. Manual Muscle Testing: Introduction to MMT, Principles & Aims, Indications & Limitations, Techniques of MMT for group & individual: Techniques of MMT for upper limb / Techniques of MMT for lower limb / Techniques of MMT for spine. iii. Anthropometric Measurements: Muscle girth – biceps, triceps, forearm, quadriceps, calf iv. Static power Test v. Dynamic power Test vi. Endurance test d. Speed test Tests for Co-ordination	Lecture Discussion, Demonstration & Practicals

2. H. 69

		e. Tests for sensation f. Pulmonary Function tests g. Measurement of Limb Length: true limb length, apparent limb length, segmental limblength h. Measurement of the angle of Pelvic Inclination.	
III.	5	**Relaxation** a. Definitions: Muscle Tone, Postural tone, Voluntary Movement, Degrees of relaxation, Pathological tension in muscle, Stress mechanics, types of stresses, Effects of stress onthe body mechanism, Indications of relaxation, Methods & techniques of relaxation-Principles & uses: General, Local, Jacobson's, Mitchel's, additional methods.	Lecture Discussion, Demonstration & Practicals
IV.	5	**Passive Movements** a. Causes of immobility, Classification of Passive movements, Specific definitions related to passive movements, Principles of giving passive movements, Indications, contraindications, effects of uses, Techniques of giving passive movements.	Lecture Discussion, Demonstration & Practicals
V.	5	**Active Movements** a. Definition of strength, power & work, endurance, muscle actions. b. Physiology of muscle performance: structure of skeletal muscle, chemical & mechanicalevents during contraction &relaxation, muscle fiber type, motor unit, force gradation. c. Causes of decreased muscle performance d. Physiologic adaptation to training: Strength & Power, Endurance. e. Types of active movements	Lecture Discussion, Demonstration & Practicals

2.H.20

VI.	5	**Free exercise:** Classification, principles, techniques, indications, contraindications, effects and uses	Lecture Discussion, Demonstration & Practicals
VII.	5	**Active Assisted Exercise:** principles, techniques, indications, contraindications, effects and uses Assisted-Resisted Exercise: principles, techniques, indications, contraindications, effects and uses Resisted Exercise: Definition, principles, indications, contraindications, precautions & techniques, effects and uses	Lecture Discussion, Demonstration & Practicals
VIII.	6	**Types of resisted exercises:** Manual and Mechanical resistance exercise, Isometric exercise, Dynamic exercise: Concentric and Eccentric, Dynamic exercise: Constant versus variable resistance, Isokinetic exercise, Open-Chain and Closed-Chain exercise.	Lecture Discussion, Demonstration & Practicals
IX.	20	a. History and Classification of Massage Technique b. Principles, Indications and Contraindications c. Technique of Massage Manipulations d. Physiological and Therapeutic Uses of Specific Manipulations	Lecture Discussion, Demonstration & Practicals

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BIOMECHANICS AND KINESIOLOGY PRACTICAL

Course Code: U21BPTT320 **Instruction hours:** Practical – 60 hours

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

2-H-22

EXERCISE THERAPY - BASICS & SOFT TISSUE MANIPULATION PRACTICAL

Course Code: U21BPTT321 **Instruction hours:** Practical – 120 hours

1. Different test methods
2. Demonstrate relaxation techniques.
3. Demonstrate to apply the technique of passive movements
4. Demonstrate various techniques of Active movements
5. Demonstrate massage technique application according to body parts.

2.4.23

THERAPEUTIC YOGA

Course Code: U21BPTT322 **Instruction hours:** Theory – 15 hours

Practical 30 hours

Unit	Hrs	Content	Teaching method
I	5	**Foundations of Yoga** a. Introduction to Yoga and its philosophy b. Brief history, development of Yoga c. Philosophical foundations of Yoga d. Streams & types of Yoga	Lecture Discussion
II	5	**Yoga and Health** a. Concept of body in yoga – Panchakosha theory b. Concept of Health and Disease in yoga c. Stress management through yoga d. Disease prevention and promotion of positive health through yoga	Lecture Discussion
III.	5	**Physiological effects of Yoga practices** a. Physiological effects of Shat kriyas b. Physiological effects of Asanas c. Physiological effects of Pranayamas d. Physiological effects of Relaxation techniques and Meditation	Lecture Discussion

PRACTICAL - List of Practical / Demonstrations (30 hours)

IV.	3	**Sukshma Vyayama/Sithilikarna Vyayama and Surya Namaskar: (3 hours)** a. Loosening exercises of each part of the body particularly of the joints b. 12 step Surya namaskar with prayer and specific mantras	Demonstration & Practicals

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V.	3	**Yogic kriyas [Observation/ demonstration only] (3 hours)** a. Neti (Jala Neti, Sutra Neti) b. Dhauti (Vamana Dhauti, Vastra Dhauti) c. Trataka d. Shankaprakshalana (Laghu & Deergha)	Demonstration & Practicals
VI.	18	**Yogasanas** **a. Standing postures (4 hours)** i. Tadasana (Upward stretch posture) ii. Ardha Chakrasana (Half wheel posture) iii. Ardha Katicakrasana (Half lumber wheel posture) iv. Utkatasana (Chair posture) v. Pada Hastasana (Hand to toes posture) vi. Trikonasana (Triangle posture) vii. Parshva Konasana (Side angle posture) viii. Garudasana (Eagle posture) ix. Vrikshasana (Tree posture) **b. Prone positions (4 hours)** i. Makarasana (Crocodile posture) ii. Bhujangasana (Cobra posture) iii. Salabhasana (Locust posture) iv. Dhanurasana (Bow posture) v. Naukasana (Boat posture) vi. Marjalasana (Cat posture) **c. Supine postures (4 hours)** i. Ardha halasana/ Uttana Padasana ii. Sarvangasana (All limb posture) iii. Pawana muktasana (Wind releasing posture) iv. Matsyasana (Fish posture) v. Halasana (Plough posture) vi. Chakrasana (Wheel posture) vii. Setu Bandhasana (Bridge posture) viii. Shavasana (Corpse posture) **d. Sitting postures (4 hours)** i. Parvatasana (Mountain posture) ii. Bhadrasana (Gracious posture) iii. Vajrasana (Adamantine posture) iv. Paschimottanasana (Back stretching posture) v. Janushirasana (Head to knee posture) vi. Simhasana (Lion posture) vii. Gomukhasana (Cow head posture) viii. Ushtrasana (Camel posture) ix. Ardha Matsyendrasana (Half matsyendra spine twist posture)	Demonstration & Practicals

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		x. Vakrasana (Spinal twist posture) xi. Kurmasana (Turtle posture) xii. Shashankasana (Rabbit posture) xiii. Mandukasana (Frog Posture) e. **Meditative postures and Meditation techniques (2 hours)** i. Siddhasana (Accomplished pose) ii. Padmasana (Lotus posture) iii. Samasana iv. Swastikasana (Auspicious posture)	
VII.	4	**Pranayamas (4 hours)** a. The practice of correct breathing and Yogic deep breathing b. Kapalabhati c. Bhastrika d. Sitali e. Sitkari f. Sadanta g. Ujjayi h. Surya Bhedana i. Chandra Bhedana j. Anuloma-Viloma/Nadishodana k. Bhramari	Demonstration & Practicals
VIII.	2	**Relaxation Techniques (2 hours)** a. Shavasana b. Yoga Nidra	Demonstration & Practicals

2.11.26

FIRST AID AND BASIC LIFE SUPPORT

Course Code: U21BPTT323 **Instruction hours:** Theory – 15 hours

Practical 30 hours

Unit	Hrs T+P	Content	Teaching method
I	3+4	**Introduction:** Definition of first aid. Importance of first aid, Golden rules of first aid, Scope and concept of emergency	Lecture Discussion Demonstration & Practicals
II	3+6	**First aid emergencies:** 1. Wounds and Bleeding 2. Head injuries 3. Epilepsy 4. Burns & Scalds : Causes, Degrees of burns, First aid treatment, General treatment. 5. Poisoning: Classification (irritants, acid, alkali, narcotics), Signs and symptoms. First aid treatment, General treatment. 6. Trauma due to foreign body intrusion : Eye, ear, nose, throat, stomach and lungs. 7. Bites : First aid, signs, symptoms and treatment. Dog bite : rabies Snake bite : neurotoxin, bleeding diathesis	Lecture Discussion Demonstration & Practicals
III.	3+6	Skeletal injuries Definition: Types of fractures of various parts of the body. Causes, Signs and Symptoms. Rules of treatment, Transportation of patient with fracture and spinal cord injuries. First aid measures in dislocation of joints. Treatment of muscle injuries.	Lecture Discussion Demonstration & Practicals

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		Respiratory emergencies : 1. Asphyxia : Etiology, Signs & Symptoms, rules of treatment. 2. Drowning : Definition and management. 3. Artificial respiration : Types and techniques.	
IV	3+4	Transportation of the injured Methods of transportation : Single helper, Hand seat, Stretcher Wheeled transport (ambulance). Precautions taken : Blanket lift, Air and Sea travel.	Lecture Discussion Demonstration & Practicals
V	3+10	**Basic Life Support** – AHA Guidelines	Lecture Discussion Demonstration & Practicals

2.11.28

Semester – IV

EXERCISE THERAPY – ADVANCED

Course Code: U21BPTT324 **Instruction hours:** Theory – 60 hours

Unit	Hrs	Content	Teaching method
I.	3	**Specific exercise regimens** a. Isotonic: de Lormes, Oxford, MacQueen, Circiut weight training b. Isometric: BRIME (Brief Resisted Isometric Exercise), Multiple Angle c. Isometrics Isokinetic regimens	Lecture Discussion Demonstration & Practicals
II.	5	**Proprioceptive Neuromuscular Facilitation** a. Definitions & goals b. Basic neurophysiologic principles of PNF: Muscular activity, Diagonals patterns ofmovement: upper limb, lower limb c. Procedure: components of PNF d. Techniques of facilitation e. Mobility: Contract relax, Hold relax, Rhythmic initiation f. Strengthening: Slow reversals, repeated contractions, timing for emphasis, rhythmicstabilization Stability: Alternating isometric, rhythmic stabilization g. Skill: timing for emphasis, resisted progression Endurance: slow reversals, agonistreversal	Lecture Discussion Demonstration & Practicals
III.	4	**Suspension Therapy** a. Definition, principles, equipments & accessories, Indications & contraindications, Benefits of suspension therapy b. Types of suspension therapy: axial, vertical, pendular Techniques of suspension therapyfor upper limb Techniques of suspension therapy for	Lecture Discussion Demonstration & Practicals

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		lower limb	
IV.	3	**Functional Re-education** a. Lying to sitting: Activities on the Mat/Bed, Movement and stability at floor level; Sittingactivities and gait; Lower limb and Upper limb activities.	Lecture Discussion Demonstration & Practicals
V.	4	**Aerobic Exercise** a. Definition and key terms; Physiological response to aerobic exercise, Examination and evaluation of aerobic capacity – Exercise Testing, Determinants of an Exercise Program, The Exercise Program, Normal and abnormal response to acute aerobic exercise, Physiological changes that occur with training, Application of Principles of an Aerobic conditioning program for patients – types and phases of aerobic training.	Lecture Discussion Demonstration & Practicals
VI.	5	**Stretching** a. Definition of terms related to 7.stretching; Tissue response towards immobilization and elongation, Determinants of stretching exercise, Effects of stretching, Inhibition and relaxation procedures, Precautions and contraindications of stretching, Techniques of stretching.	Lecture Discussion Demonstration & Practicals
VII.	5	**Manual Therapy & Peripheral Joint Mobilization** a. Schools of Manual Therapy, Principles, Grades, Indications and Contraindications, Effects and Uses – Maitland, Kaltenborn, Mulligan b. Biomechanical basis for mobilization, Effects of joint mobilsation, Indications and contraindications, Grades of mobilization, Principles of mobilization, Techniques of mobilization for upper limb, lower limb, Precautions.	Lecture Discussion Demonstration & Practicals

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VIII.	5	**Balance – Definition** a. Physiology of balance: contributions of sensory systems, processing sensory information, generating motor output b. Components of balance (sensory, musculoskeletal, biomechanical) c. Causes of impaired balance, Examination & evaluation of impaired balance, Activities for treating impaired balance: mode, posture, movement, Precautions & contraindications,Types Balance retraining.	Lecture Discussion Demonstration & Practicals
IX.	4	**Co-ordination Exercise** a. Anatomy & Physiology of cerebellum with its pathways Definitions: Co-ordination, Inco-ordination b. Causes for Inco-ordination, Test for co-ordination: equilibrium test, non-equilibrium testPrinciples of co-ordination exercise. c. Frenkel's Exercise: uses of Frenkel's exercise, technique of Frenkel's exercise,progression, home exercise.	Lecture Discussion Demonstration & Practicals
X.	5	**Posture** a. Definition, Active and Inactive Postures, Postural Mechanism, Patterns of Posture,Principles of re-education: corrective methods and techniques, Patient education.	Lecture Discussion Demonstration & Practicals
XI.	5	**Walking Aids** a. Types: Crutches, Canes, Frames; Principles and training with walking aids	Lecture Discussion Demonstration & Practicals
XII	7	**Basics in Manual Therapy & Applications with Clinical reasoning** a. Examination of joint integrity i. Contractile tissues ii. Non contractile tissues	Lecture Discussion Demonstration & Practicals

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		b. Mobility - assessment of accessory movement & End feel c. Assessment of articular & extra-articular soft tissue status i. Myofascial assessment ii. Acute & Chronic muscle hold iii. Tightness iv. Pain-original & referred d. Basic principles, Indications & Contra-Indications of mobilization skills for joints & softtissues. i. Maitland ii. Mulligan iii. Mckenzie iv. Muscle Energy Technique v. Myofascial stretching vi. Cyriax vii. Neuro Dynamic Testing	
XIII.	3	**Hydrotherapy** a. Definitions, Goals and Indications, Precautions and Contraindications, Properties ofwater, Use of special equipment, techniques, Effects and uses, merits and demerits	Lecture Discussion Demonstration & Practicals
XIV.	2	**Individual and Group Exercises** a. Advantages and Disadvantages, Organization of Group exercises, Recreational Activitiesand Sports	Lecture Discussion Demonstration & Practicals

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ELECTROTHERAPY I

Course Code: U21BPTT425 **Instruction hours:** Theory – 60 hours

Unit	Hrs	Content	Teaching method
I	3	**Basic types of current** a. Direct Current: types, physiological &therapeutic effects. b. Alternating Current	Lecture Discussion Demonstration & Practicals
II	3	**Types of Current used in Therapeutics** a. Modified D.C i. Faradic Current ii. Galvanic Current b. Modified A.C i. Sinusoidal Current ii. Diadynamic Current.	Lecture Discussion Demonstration & Practicals
III.	6	**Faradic Current:** Definition, Modifications, Techniques of Application of Individual, Muscle and Group Muscle stimulation, Physiological & Therapeutic effects of Faradic Current, Precautions, Indications & Contra-Indications, Dangers.	Lecture Discussion Demonstration & Practicals
IV.	6	**Galvanic Current:** Definition, Modifications, Physiological & Therapeutic effects of Galvanic Current, Indications & Contra-Indications, Dangers, Effect of interrupted galvanic current on normally innervated and denervated muscles and partially denervated muscles.	Lecture Discussion Demonstration & Practicals
V.	2	1. Sinusoidal Current & Diadynamic Current in Brief. 2. HVPGS – Parameters & its uses	Lecture Discussion Demonstration & Practicals
VI.	5	1. Ionization / Iontophoresis: Techniques of Application of Iontophoresis, Indications, Selectionof Current, Commonly used Ions (Drugs) for pain, hyperhydrosis, would healing. 2. Cathodal / Anodal galvanism. 3. Micro Current & Macro Current	Lecture Discussion Demonstration & Practicals
VII.	5	**Types of Electrical Stimulators** a. NMES- Construction component. b. Neuro muscular diagnostic stimulator-construction component.	Lecture Discussion Demonstration & Practicals

		c. Components and working Principles d. Principles of Application: Electrode tissue interface, Tissue Impedance, Types of Electrode, Size& Placement of Electrode – Waterbath, Unipolar, Bi-polar, Electrode coupling, Current flow intissues, Lowering of Skin Resistance.	
VIII.	3	**Nerve Muscle Physiology:** Action Potential, Resting membrane potential, Propagation of Action Potential, Motor unit, synapse, Accommodation, Stimulation of Healthy Muscle, Stimulation of Denervated Muscle, and Stimulation for Tissue Repair.	Lecture Discussion Demonstration & Practicals
IX.	5	**TENS:** Define TENS, Types of TENS, Conventional TENS, Acupuncture TENS, Burst TENS,Brief & Intense TENS, Modulated TENS. Types of Electrodes & Placement of Electrodes, Dosage parameters, Physiological & Therapeutic effects, Indications & Contraindications.	Lecture Discussion Demonstration & Practicals
X	2	**Pain:**Define Pain, Theories of Pain (Outline only), Pain Gate Control theory in detail.	Lecture Discussion Demonstration & Practicals
XI.	10	**Electro-diagnosis** 1. FG Test 2. 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. 3. Nerve conduction velocity studies 4. EMG: Construction of EMG equipment. 5. Bio-feedback.	Lecture Discussion Demonstration & Practicals
XII.	10	**Medium Frequency** 1. Interferential Therapy: Define IFT, Principle of Production of IFT, Static Interference System,Dynamic Interference system, Dosage Parameters for IFT, Electrode placement in IFT, Physiological & Therapeutic effects, Indications & Contraindications. 2. Russian Current 3. Rebox type Current	Lecture Discussion Demonstration & Practicals

ELECTROTHERAPY II

Course Code: U21BPTT426 **Instruction hours:** Theory – 75 hours

Unit	Hrs	Content	Teaching method
I	2	Electro Magnetic Spectrum.	Lecture Discussion Demonstration & Practicals
II	10	**SWD:** a) Define short wave, Frequency & Wavelength of SWD, Principle of Production of SWD,Circuit diagram & Production of SWD, Methods of Heat Production by SWD treatment, Typesof SWD Electrode, Placement & Spacing of Electrodes, Tuning, Testing of SWD Apparatus, Physiological & Therapeutic effects, Indications & Contraindications, Dangers, Dosage parameters. b) Pulsed Electro Magnetic Energy: Principles, Production & Parameters of PEME, Uses of PEME.	Lecture Discussion Demonstration & Practicals
III.	5	**Micro Wave Diathermy:** Define Microwave, Wave length & Frequency, Production of MW, Applicators, Dosage Parameters, Physiological & Therapeutic effects, Indications & Contraindications, Dangers of MWD.	Lecture Discussion Demonstration & Practicals
IV.	10	**Ultrasound Therapy** Define Ultrasound, Frequency, Piezo Electric effects: Direct, Reverse, Production of US, Treatment Dosage parameters: Continuous& Pulsed mode, Intensity, US Fields: Near field, Far field, Half value distance, Attenuation, Coupling Media, Thermal effects, Non-thermal effects, Principles & Application of US: Direct contact, Water bag, Water bath, Solid sterile gel pack method for wound. Uses of US, Indications & Contraindications, Dangers of Ultrasound. Phonophoresis: Define Phonophoresis, Methods of application, commonly used drugs, Uses. Dosages of US.	Lecture Discussion Demonstration & Practicals
V.	5	**IRR:** Define IRR, wavelength & parameters, Types of IR generators, Production of IR, Physiological &	Lecture Discussion Demonstration & Practicals

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		Therapeutic effects, Duration & frequency of treatment, Indication & Contraindication.	
VI.	10	UVRDefine UVR, Types of UVR, UVR generators: High pressure mercury vapour lamp, Water cooled mercury vapour lamp, Kromayer lamp, Fluorescent tube, Theraktin tunnel, PUVA apparatus. Physiological & Therapeutic effects. Sensitizers & Filters. Test dosage calculation. Calculation of E1, E2, E3, E4 doses. Indications, contraindications. Dangers. Dosages for different therapeutic effects, Distance in UVR lamp	Lecture Discussion Demonstration & Practicals
VII.	10	**LASER:** Define LASER. Types of LASER. Principles of Production. Production of LASER by various methods. Methods of application of LASER. Dosage of LASER. Physiological & Therapeutic effects of LASER. Safety precautions of LASER. Classifications of LASER. Energy density & power density	Lecture Discussion Demonstration & Practicals
VIII.	18	**Superficial heating Modalities** 1. Wax Therapy: Principle of Wax Therapy application – latent Heat, Composition of Wax BathTherapy unit, Methods of application of Wax, Physiological & Therapeutic effects, Indications & Contraindication, Dangers. 2. Contrast Bath: Methods of application, Therapeutic uses, Indications & Contraindications. 3. Moist Heat Therapy: Hydro collator packs – in brief, Methods of applications, Therapeutic uses, Indications & Contraindications. 4. Cyclotherm: Principles of production, Therapeutic uses, Indications & Contraindications. 5. Fluidotherapy: Construction, Method of application, Therapeutic uses, Indications & Contraindications. 6. Whirl Pool Bath: Construction, Method of Application, Therapeutic Uses, Indications & Contraindications. 7. Magnetic Stimulation, Principles, Therapeutic uses, Indications & contraindication	Lecture Discussion Demonstration & Practicals
IX.	5	**Cryotherapy:** Define- Cryotherapy, Principle- Latent heat of fusion,Physiological & Therapeutics effects, Techniques of Applications, Indications & Contraindications, Dangers, Methods of application with dosages.	Lecture Discussion Demonstration & Practicals

Course Code: U21BPTT427 **Instruction hours:** Theory – 45 hours

Unit	Hrs	Content	Teaching method
		Physical principles a. Structure and properties of matter - solids, liquids and gases, adhesion, surface tension,viscosity, density and elasticity. b. Structure of atom, molecules, elements and compound c. Electricity: Definition and types. Therapeutic uses. Basic physics of construction. Working d. Importance of currents in treatment. e. Static Electricity: Production of electric charge. Characteristic of a charged body. f. Characteristics of lines of forces. Potential energy and factors on which it depends.Potential difference and EMF. g. Current Electricity: Units of Electricity: farad, Volt, Ampere, Coulomb, Watt h. Condensers: Definition, principle, Types-construction and working, capacity & uses. i. Magnetism: Definition. Properties of magnets. Electromagnetic induction. Transmissionby contact. Magnetic field and magnetic forces. Magnetic effects of an electric field. j. Conductors, Insulators, Potential difference, Resistance and intensity k. Ohm's law and its application to DC and AC currents. Fuse: construction, working andapplication. l. Transmission of electrical energy through solids, liquids, gases and vacuum. m. Rectifying Devices-Thermionic valves, Semiconductors, Transistors, Amplifiers,transducer and Oscillator circuits. n. Display devices and indicators-analogue and digital.	Lecture Discussion Demonstration & Practicals

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		o. Transformer: Definition, Types, Principle, Construction, Eddy current, working uses p. Chokes: Principle, Construction and working, Uses	
II.	5	**Effects of Current Electricity** a. Chemical effects-Ions and electrolytes, Ionisation, Production of an EMF by chemicalactions. b. Ionization: Principles, effects of various technique of medical ionization. c. Electromagnetic Induction. d. Electromagnetic spectrum.	Lecture Discussion Demonstration & Practicals
III.	10	**Electrical Supply** a. Brief outline of main supply of electric current b. Dangers-short circuit, electric shocks: Micro/ Macro shocks c. Precaution-safety devices, earthing, fuses etc. d. First aid and initial management of electric shock e. Burns: electrical & chemical burns, prevention and management	Lecture Discussion Demonstration & Practicals
IV.	10	**Various agents** a. Thermal agents: Physical Principles of cold, Superficial and deep heat. b. Ultrasound: Physical Principles of Sound c. Electro- magnetic Radiation: Physical Principles and their Relevance to PhysiotherapyPractice d. Electric Currents: Physical Principles and their Relevance to Physiotherapy Practice.	Lecture Discussion Demonstration & Practicals

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EXERCISE THERAPY ADVANCED PRACTICAL

Course Code: U21BPTT428 **Instruction hours:** Practical – 120 hours

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. Demonstrate the technique of measuring using goniometry
2. Demonstrate muscle strength using the principles and technique of MMT
3. Demonstrate the techniques for muscle strengthening based on MMT grading
4. Demonstrate the PNF techniques
5. Demonstrate exercises for training co-ordination – Frenkel's exercise
6. Demonstrate the techniques of massage manipulations
7. Demonstrate techniques for functional re-education
8. Assess and train for using walking aids
9. Demonstrate mobilization of individual joint regions
10. Demonstrate to use the technique of suspension therapy for mobilizing and strengthening jointsand muscles
11. Demonstrate the techniques for muscle stretching
12. Assess and evaluate posture and gait
13. Demonstrate techniques of strengthening muscles using resisted exercises
14. Demonstrate techniques for measuring limb length and body circumference.

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ELECTROTHERAPY I PRACTICAL

Course Code: U21BPTT429 **Instruction hours:** Practical – 90 hours

The student of Electrotherapy must be able to demonstrate the use of electrotherapy modalities applying the principles of electrotherapy with proper techniques, choice of dosage parameters and safety precautions.

1. Demonstrate the technique for patient evaluation – receiving the patient and positioning thepatient for treatment using electrotherapy.
2. Collection of materials required for treatment using electrotherapy modalities and testing of theapparatus.
3. Demonstrate placement of electrodes for various electrotherapy modalities
4. Electrical stimulation for the muscles supplied by the peripheral nerves
5. Faradism under Pressure for UL and LL
6. Plotting of SD curve with chronaxie and rheobase
7. Demonstrate FG test

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ELECTROTHERAPY II PRACTICAL

Course Code: U21BPTT430 **Instruction hours:** Theory – 90 hours

The student of Electrotherapy must be able to demonstrate the use of electrotherapy modalities applying the principles of electrotherapy with proper techniques, choice of dosage parameters and safety precautions.

Demonstrate the technique for patient evaluation – receiving the patient and positioning the patient for treatment using electrotherapy.

1. Collection of materials required for treatment using electrotherapy modalities and testing of theapparatus.
2. Application of Ultrasound for different regions-various methods of application
3. Demonstrate treatment techniques using SWD, IRR and Microwave diathermy
4. Demonstrate the technique of UVR exposure for various conditions – calculation of test dose
5. Demonstrate treatment method using IFT for various regions
6. Calculation of dosage and technique of application of LASER
7. Technique of treatment and application of Hydrocollator packs, cryotherapy, contrast bath, waxtherapy
8. Demonstrate the treatment method using whirl pool bath
9. Winding up procedure after any electrotherapy treatment method.

Equipment care -

1. Checking of equipments
2. Arrangement of exercise therapy and electro therapy equipment.
3. Calibration of equipment
4. Purchase, billing, document of equipment.
5. Safety handling of equipments.
6. Research lab equipment maintenance.
7. Stock register, movement register maintenance

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PHYSIOTHERAPY ETHICS

Course Code: U21BPTT431 **Instruction hours:** Theory – 15 hours

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

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

Unit	Hrs	Content	Teaching method
I	1	Medical ethics versus medical law - Definition - Goal - Scope	Lecture Discussion
II	2	1. Introduction to Code of conduct 2. Basic principles of medical ethics – Confidentiality 3. Malpractice and negligence - Rational and irrational drug therapy 4. Autonomy and informed consent - Right of patients	
III.	2	1. Care of the terminally ill- Euthanasia 2. Organ transplantation 3. Medical diagnosis versus physiotherapy diagnosis.	
IV.	4	**Medico legal aspects of medical records** – Medico legal case and type- Records and documentrelated to MLC - ownership of medical records - Confidentiality Privilege communication - Release of medical information - Unauthorized disclosure - retention of medical records - othervarious aspects.	
V.	2	1. Professional Indemnity insurance policy 2. Development of standardized protocol to avoid near miss or sentinel events	

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		3. Obtaining an informed consent. 4. Biomedical ethical principles	
VI.	4	1. Code of ethics for physiotherapists 2. Ethics documents for physiotherapists 3. Laws affecting physiotherapy practice	

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