MOHAN BABU UNIVERSITY

Sree Sainath Nagar, Tirupati – 517 102

MBU
MOHAN BABU
UNIVERSITY
DREAM. BELIEVE. ACHIEVE

SCHOOL OF PARAMEDICAL, ALLIED AND HEALTH CARE SCIENCES

Master of Physiotherapy - Sports

CURRICULUM AND SYLLABUS

(From 2022-23 Admitted Batches)

FULLY FLEXIBLE CHOICE BASED CREDIT SYSTEM (FFCBCS)

MOHAN BABU UNIVERSITY

Vision

To be a globally respected institution with an innovative and entrepreneurial culture that offers transformative education to advance sustainability and societal good.

Mission

- Develop industry-focused professionals with a global perspective.
- Offer academic programs that provide transformative learning experience founded on the spirit of curiosity, innovation, and integrity.
- Create confluence of research, innovation, and ideation to bring about sustainable and socially relevant enterprises.
- Uphold high standards of professional ethics leading to harmonious relationship with environment and society.

SCHOOL OF PARAMEDICAL, ALLIED AND HEALTH CARE SCIENCES

Vision

To be the global center of excellence for paramedical and allied health science education, research, innovation, incubation, consultancy and public service.

Mission

- Inspire the experts of paramedical and allied health sciences of tomorrow to take on the public health challenges of our society.
- Train the students with fundamental knowledge of paramedical and allied health sciences, skills set and positive attitude for creating innovative solutions to serve industry and community through congenial learning environment with contemporary academic programs, state of the art infrastructure facilities and community health programs.
- Facilitate budding paramedical and allied health science experts with the best research-innovation-incubation-start-up ecosystem to realize their fullest potential for sustainable businesses.
- Encourage faculty and staff to excel in their respective domains of expertize and demonstrate the best of their abilities by way of continuing education, research support and consultancy.

Master of Physiotherapy - Sports

PROGRAM EDUCATIONAL OBJECTIVES

After few years of graduation, the graduates of MPT program will:

PEO1. Evolve as an entrepreneur or be employed in physiotherapy practice.

PEO2. Pursued research studies in the field of physiotherapy and allied areas.

PEO3. Continued to learn and to adapt evolving concepts and technologies in the core or allied Physiotherapy.

PROGRAM OUTCOMES

On successful completion of the Program, the graduates of MPT Program will be able to:

PO1. **Knowledge:** Apply evidence-based concepts of physiotherapy and its therapeutic procedures.

PO2. **Analysis:** Analyze, evaluate and diagnose various problems using research-based knowledge and research methods in Physiotherapy practice.

PO3. **Tools & Techniques:** Identify appropriate strategies and rehabilitative approaches to restore normal activities of daily living.

PO4. **Ethics and Society:** Apply the ethical principles of health care practices for sustainable development of society

PO5. **Individual and teamwork:** Function effectively as an individual, and as a member or leader in diverse teams, and multidisciplinary settings.

PO6. **Effective Communication:** Communicate effectively on Paramedical & allied Health care activities with the treating patient, community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO7. **Project and Finance Management**: Demonstrate knowledge and understanding the management principles and apply these to one's own work to manage projects in multidisciplinary health care system.

PO8. **Life-long learning:** Adapt to the changes and advancements in technology and engage in independent and lifelong learning

PROGRAM SPECIFIC OUTCOMES

On successful completion of the Program, the graduates of MPT-sports program will be able to:

PSO1. Analyze and apply appropriate sports injuries treatment with clinical reasoning.

PSO2. Analyze the problem and advice suitable ergonomics for corrections of postures.

PSO3. Demonstrate appropriate exercises for health and physical fitness.

Master of Physiotherapy - Sports

Basket Wise - Credit Distribution

S. No.	Basket	Credits (Min. - Max.)
1	SCHOOL CORE	48-50
2	PROGRAM CORE	29-32
3	PROGRAM ELECTIVE	20-26
4	UNIVERSITY ELECTIVE	3-6
	TOTAL CREDITS	**Min. 100**

SCHOOL CORE (48-50 Credits)

Course Code	Title of the Course	Lecture	Tutorial	Practical	Project Based Learning	Credits	Pre-requisite
		L	T	P	S	C	
22PT201001	Research Methodology for Biostatistics	4	-	-	-	4	-
22EE201002	Innovation and Intellectual Property Rights	2	-	-	-	2	-
22PT211001	Clinical Training-I	-	-	-	-	6	-
22PT211002	Clinical Training-II	-	-	-	-	6	-
22PT211003	Clinical Training-III	-	-	-	-	8	-
22PT211004	Clinical Training-IV	-	-	-	-	8	Clinical Training-III
22PT211005	Literature Review and Teaching –I	-	-	-	-	1	-
22PT211006	Literature Review and Teaching –II	-	-	-	-	1	Literature Review and Teaching –I
22PT211007	Literature Review and Teaching –III	-	-	-	-	1	Literature Review and Teaching –II
22PT211008	Literature Review and Teaching –IV	-	-	-	-	1	Literature Review and Teaching –III
22AB211001	Community Camp I	-	-	-	-	1	-
22AB211002	Community Camp II	-	-	-	-	1	Community Camp I
22PT211009	Dissertation	-	-	-	-	10	-
22PT201007	Research Methodology and Biostatistics	4	-	-	-	4	-
Mandatory Courses (Min. 4 Credits to be earned, Earned Credits will not be considered for CGPA)							
22MG207601	Project Management	2	-	-	-	2	-
22PT201008	Essentials of Business Etiquettes	2	-	-	-	2	-
22CE201701	Disaster Management	3	-	-	-	3	-
22CM207601	Essentials of Leadership	2	-	-	-	2	-

Note: Clinical Training-I & II - 3 Hours/day; Clinical Training-III & IV -5 Hours/day;

PROGRAM CORE (29-32Credits)

Course Code	Title of the Course	Lecture	Tutorial	Practical	Project Based Learning	Credits	Pre-requisite
		L	T	P	S	C	
22PT201002	Principles of Physiotherapy Practice	2	-	-	-	2	-
22PT202001	Exercise Physiology and Nutrition	4	-	2	-	5	-
22PT202002	Clinical Electrophysiology	5	-	2	-	6	-
22PT202003	Clinical Biomechanics and Kinesiology	4	-	2	-	5	-
22PT202004	Advanced Physiotherapeutic-I	3	-	2	-	4	-
22PT202005	Advanced Physiotherapeutic-II	2	-	2	-	3	-
22PT202006	Physiotherapy Diagnosis and Clinical Decision Making	3	-	2	-	4	-
22PT201003	Sports for Fitness, Prosthetics and Orthotics	4	-	-	-	4	-

PROGRAM ELECTIVE (20-26 Credits)

Course Code	Title of the Course	Lecture	Tutorial	Practical	Project Based Learning	Credits	Pre-requisite
		L	T	P	S	C	
22PT202010	Basic Science - Sports Medicine	4	-	2	-	5	-
22PT201006	Clinical Sports Medicine	5	-	-	-	5	-
22PT202011	Evaluation of Sports Injuries	4	-	2	-	5	-
22PT202012	Physiotherapy in Sports Medicine	4	-	2	-	5	-
22PT202009	Orthopaedic Physiotherapy Intervention	4	-	2	-	5	-
22PT201005	Geriatrics Physiotherapy	2	-	-	-	2	-

UNIVERSITY ELECTIVE (3-6 Credits)

Course Code	Title of the Course	Lecture	Tutorial	Practical	Project based Learning	Credits	Pre-requisite
		L	T	P	S	C	
22CB101703	Forensic Science	3	-	-	-	3	-
22EC101701	AI in Healthcare	3	-	-	-	3	-
22SS201701	Value Education	3	-	-	-	3	-
22SS201702	Pedagogy Studies	3	-	-	-	3	-
22LG201701	Personality Development	3	-	-	-	3	-

Note:

1. If any student has chosen a course or equivalent course from the above list in their regular curriculum then, he/she is not eligible to opt the same course/s under University Elective.

2. The student can choose courses from other disciplines offered across the schools of MBU satisfying the pre-requisite other than the above list.

SCHOOL CORE

Course Code	Course Title	L	T	P	S	C
22PT201001	**RESEARCH METHODOLOGY FOR BIOSTATISTICS**	4	-	-	-	4

Pre-Requisite -

Anti-Requisite -

Co-Requisite -

COURSE DESCRIPTION: The course is developed for the students to understand the underlying concepts of research methodology and a systematic approach for carrying out research in the domain of interest. The course is emphasised on developing skills to recognise and reflect the strength and limitation of different types of research; data collection methods, methods of Processing and analysing data. The course also emphasises on interpreting the findings and research articulating skills.

COURSE OUTCOMES: After successful completion of the course, students will be able to:

CO1. Demonstrate the underlying concepts of research methodology, types of research and the systematic research process and philosophy of research design.

CO2. Demonstrate the philosophy of formulation of research problem, methods of data collection, review of literature and formulation of working hypothesis.

CO3. Demonstrate the philosophy of biostatistics and its relevance to research methodology for carrying research in the domain.

CO4. Analyze various data processing & techniques and their significance in research.

CO5. Develop skills to interpret the findings and research articulating skills along with the ethics of research.

CO-PO-PSO Mapping Table:

Course Outcomes	Program Outcomes								Program Specific Outcomes		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	-	-	-	-	-	-	-	3	-	-
CO2	3	2	1	-	-	-	-	-	3	-	-
CO3	3	1	-	-	-	-	-	-	3	-	-
CO4	3	3	2	-	-	-	-	-	3	-	-
CO5	3	2	1	-	-	3	-	1	3	-	-
Course Correlation Level	**3**	**2**	**2**	**-**	**-**	**3**	**-**	**1**	**3**	-	-

Correlation Levels: ***3: High;*** ***2: Medium;*** ***1: Low***

COURSE CONTENT

Module 1: INTRODUCTION TO RESEARCH METHODOLOGY ***(10 Periods)***

Meaning of Research, Objectives of Research, Motivation in Research, Types of Research, Research Approaches, Significance of Research, Research and Scientific Method, Research Process, Criteria of Good Research. Research design—Basic Principles, Need of research design, Features of good design, Basic principles of experimental designs,

Module 2: RESEARCH PROBLEM FORMULATION ***(10 Periods)***

Defining and formulating the research problem - Selecting the problem - Necessity of defining the problem - Importance of literature review in defining a problem – Data collection – Primary and secondary sources; Critical literature review – Identifying gap areas from literature review, Development of working hypothesis.

Module 3: INTRODUCTION TO BIOSTATISTICS ***(12 Periods)***

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, Variables and their types, Measurement scales.

Module 4: STATISTICAL ANALYSIS OF DATA ***(18 periods)***

Need for measures of central Tendency: mean, median and mode, Guidelines for the use of various measures of central tendency, Standard deviation; Need for sampling - Criteria for good samples, Application of sampling in community, Procedures of sampling and sampling designs errors; Correlation and Regression; Analysis of variance (ANOVA):Basic principle of ANOVA, ANOVA technique; Normal distribution.

Module 5: INTERPRETATION AND REPORT WRITING ***(10 Periods)***

Interpretation: Meaning of interpretation; Techniques of interpretation; Precautions in Interpretation.

Report Writing:

Significance, Different Steps, Layout, Types of reports, Mechanics of Writing a Scientific Research Reports and journals, Precautions in Writing Reports-Plagiarism, Critics in the research.

Total Periods: 60

EXPERIENTIAL LEARNING

1. Conduct a survey based on a hypothesis, analyze the data collected and draw the inferences from the data.
2. Review the literature on the given topic and should identify the scope/gaps in the literature and develop a research hypothesis.
3. Study a case, formulate the hypothesis and identify an appropriate testing technique for the hypothesis.
4. Study an article and submit a report on the inferences and should interpret the findings of the article.

BOOKS:

1. C.R. Kothari, *Research Methodology: Methods and Techniques*, New Age International Publishers, 2nd revised edition, New Delhi, 2004.
2. Mahajan: methods in biostatistics for medical students & research workers. Jaypee Brothers Medical Publishers; 9th edition (28th February 2018)
3. R. Panneerselvam, *Research Methodology*, PHI learning Pvt. Ltd., 2009.
4. Carolyn M. Hicks: Research methodology for clinical therapist. Churchill Livingstone; 5th edition (7th August 2009)

VIDEO LECTURES:

1. https://nptel.ac.in/courses/121106007
2. https://onlinecourses.nptel.ac.in/noc22_ge08/preview
3. https://www.youtube.com/watch?v=VK-rnA3-41c

Web Resources:

1. https://www.scribbr.com/category/methodology/
2. https://leverageedu.com/blog/research-design/
3. https://prothesiswriter.com/blog/how-to-formulate-research-problem
4. https://www.formpl.us/blog/hypothesis-testing
5. https://www.datapine.com/blog/data-interpretation-methods-benefits-problems/
6. https://leverageedu.com/blog/report-writing/

SCHOOL CORE

Course Code	Course Title	L	T	P	S	C
22PT211001	**CLINICAL TRAINING-I**	-	-	-	-	6

Pre-Requisite -

Anti-Requisite -

Co-Requisite -

COURSE DESCRIPTION: This course provides assessing & evaluating the patient and advising appropriate treatment.

COURSE OUTCOMES: After successful completion of the course, students will be able to:

CO1. Assess the patient illness by proper examination.

CO2. Identify the patient clinical condition and advise appropriate physiotherapy treatment.

CO3. Work individually and in teams following ethical practice.

CO4. Record the clinical studies for future advancements.

CO-PO-PSO Mapping Table:

Course Outcomes	Program Outcomes								Program Specific Outcomes		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	3	1	-	-	-	-	-	3	-	-
CO2	3	1	3	-	-	-	-	-	-	3	3
CO3	-	-	-	3	3	-	-	-	-	-	-
CO4	3	1	-	-	3	3	-	2	-	-	-
Course Correlation Mapping	**3**	**2**	**2**	**3**	**3**	**3**	**-**	**2**	**3**	**3**	**3**

Correlation Levels: 3: High; 2: Medium; 1: Low

Note:

Clinical Training-I -**6 Credits**;

Clinical Training-I - 3 Hours/day.

SCHOOL CORE

Course Code	Course Title	L	T	P	S	C
22PT211002	**CLINICAL TRAINING-II**	-	-	-	-	6

Pre-Requisite -

Anti-Requisite -

Co-Requisite -

COURSE DESCRIPTION: This course provides assessing & evaluating the patient and advising appropriate treatment.

COURSE OUTCOMES: After successful completion of the course, students will be able to:

CO1. Assess the patient illness by proper examination.

CO2. Identify the patient clinical condition and advise appropriate physiotherapy treatment.

CO3. Work individually and in teams following ethical practice.

CO4. Record the clinical studies for future advancements.

CO-PO-PSO Mapping Table:

Course Outcomes	Program Outcomes								Program Specific Outcomes		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	3	1	-	-	-	-	-	3	-	-
CO2	3	1	3	-	-	-	-	-	-	3	3
CO3	-	-	-	3	3	-	-	-	-	-	-
CO4	3	1	-	-	3	3	-	2	-	-	-
Course Correlation Mapping	**3**	**2**	**2**	**3**	**3**	**3**	**-**	**2**	**3**	**3**	**3**

Correlation Levels: 3: High; 2: Medium; 1: Low

Note:

Clinical Training-II –**6 Credits**.

Clinical Training-II -3 Hours/day.

SCHOOL CORE

Course Code	Course Title	L	T	P	S	C
22PT211003	**CLINICAL TRAINING-III**	-	-	-	-	8

Pre-Requisite - 22PT21102- Clinical Training-II

Anti-Requisite -

Co-Requisite -

COURSE DESCRIPTION: This course provides assessing & evaluating the patient and advising appropriate treatment.

COURSE OUTCOMES: After successful completion of the course, students will be able to:

CO1. Assess the patient illness by proper examination.

CO2. Identify the patient clinical condition and advise appropriate physiotherapy treatment.

CO3. Work individually and in teams following ethical practice.

CO4. Record the clinical studies for future advancements.

CO-PO-PSO Mapping Table:

Course Outcomes	Program Outcomes								Program Specific Outcomes		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	3	1	-	-	-	-	-	3	-	-
CO2	3	1	3	-	-	-	-	-	-	3	3
CO3	-	-	-	3	3	-	-	-	-	-	-
CO4	3	1	-	-	3	3	-	2	-	-	-
Course Correlation Mapping	**3**	**2**	**2**	**3**	**3**	**3**	**-**	**2**	**3**	**3**	**3**

Correlation Levels: 3: High; 2: Medium; 1: Low

Note:

Clinical Training-III -**8 Credits**;

Clinical Training-III - 5 Hours/day.

SCHOOL CORE

Course Code	Course Title	L	T	P	S	C
22PT211004	**CLINICAL TRAINING-IV**	-	-	-	-	8

Pre-Requisite - 22PT21103- Clinical Training-III

Anti-Requisite -

Co-Requisite -

COURSE DESCRIPTION: This course provides assessing & evaluating the patient and advising appropriate treatment.

COURSE OUTCOMES: After successful completion of the course, students will be able to:

CO1. Assess the patient illness by proper examination.

CO2. Identify the patient clinical condition and advise appropriate physiotherapy treatment.

CO3. Work individually and in teams following ethical practice.

CO4. Record the clinical studies for future advancements.

CO-PO-PSO Mapping Table:

Course Outcomes	Program Outcomes								Program Specific Outcomes		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	3	1	-	-	-	-	-	3	-	-
CO2	3	1	3	-	-	-	-	-	-	3	3
CO3	-	-	-	3	3	-	-	-	-	-	-
CO4	3	1	-	-	3	3	-	2	-	-	-
Course Correlation Mapping	**3**	**2**	**2**	**3**	**3**	**3**	**-**	**2**	**3**	**3**	**3**

Correlation Levels: 3: High; 2: Medium; 1: Low

Note:

Clinical Training-IV -**8 Credits**;

Clinical Training-IV - 5 Hours/day.

SCHOOL CORE

Course Code	Course Title	L	T	P	S	C
22PT211005	LITERATURE REVIEW AND TEACHING-I	-	-	-	-	1

Pre-Requisite -

Anti-Requisite -

Co-Requisite -

COURSE DESCRIPTION: This course deals with presentations on recent advancements and teaching for under-graduate students.

COURSE OUTCOMES: After successful completion of the course, students will be able to:

CO1. Formulate problem based on the review program specific literature on a chosen topic.

CO2. Demonstrate teaching capabilities on discipline specific topics at under graduate level.

CO-PO-PSO Mapping Table:

Course Outcomes	Program Outcomes								Program Specific Outcomes		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	3	3	1	1	3	-	2	3	3	3
CO2	3	1	1	-	-	3	-	2	3	3	3
Course Correlation Mapping	**3**	**2**	**2**	**1**	**1**	**3**	**-**	**2**	**3**	**3**	**3**

Correlation Levels: 3: High; 2: Medium; 1: Low

Note:

Applicable to Literature Review and Teaching–I-1 Credit.

Literature Review and Teaching–I- 1 Hour/Week

SCHOOL CORE

Course Code	Course Title	L	T	P	S	C
22PT211006	**LITERATURE REVIEW AND TEACHING-II**	-	-	-	-	1

Pre-Requisite - 22PT211005- Literature Review And Teaching-I

Anti-Requisite -

Co-Requisite -

COURSE DESCRIPTION: This course deals with presentations on recent advancements and teaching for under-graduate students.

COURSE OUTCOMES: After successful completion of the course, students will be able to:

CO3. Formulate problem based on the review program specific literature on a chosen topic.

CO4. Demonstrate teaching capabilities on discipline specific topics at under graduate level.

CO-PO-PSO Mapping Table:

Course Outcomes	Program Outcomes								Program Specific Outcomes		
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PSO1**	**PSO2**	**PSO3**
CO1	3	3	3	1	1	3	-	2	3	3	3
CO2	3	1	1	-	-	3	-	2	3	3	3
Course Correlation Mapping	**3**	**2**	**2**	**1**	**1**	**3**	**-**	**2**	**3**	**3**	**3**

Correlation Levels: 3: High; 2: Medium; 1: Low

Note:

Applicable to Literature Review and Teaching–II-1 Credit.

Literature Review and Teaching–II- 1 Hour/Week

SCHOOL CORE

Course Code	Course Title	L	T	P	S	C
22PT211007	**LITERATURE REVIEW AND TEACHING-III**	-	-	-	-	1

Pre-Requisite 22PT21106- Literature Review And Teaching-II

Anti-Requisite -

Co-Requisite -

COURSE DESCRIPTION: This course deals with presentations on recent advancements and teaching for under-graduate students.

COURSE OUTCOMES: After successful completion of the course, students will be able to:

CO1. Formulate problem based on the review program specific literature on a chosen topic.

CO2. Demonstrate teaching capabilities on discipline specific topics at under graduate level.

CO-PO-PSO Mapping Table:

Course Outcomes	Program Outcomes								Program Specific Outcomes		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	3	3	1	1	3	-	2	3	3	3
CO2	3	1	1	-	-	3	-	2	3	3	3
Course Correlation Mapping	**3**	**2**	**2**	**1**	**1**	**3**	**-**	**2**	**3**	**3**	**3**

Correlation Levels: 3: High; 2: Medium; 1: Low

Note:

Applicable to Literature Review and Teaching–III-1 Credit.

Literature Review and Teaching–III- 1 Hour/Week

SCHOOL CORE

Course Code	Course Title	L	T	P	S	C
22PT211008	**LITERATURE REVIEW AND TEACHING-IV**	-	-	-	-	1

Pre-Requisite - 22PT21107- Literature Review And Teaching-III

Anti-Requisite -

Co-Requisite -

COURSE DESCRIPTION: This course deals with presentations on recent advancements and teaching for under-graduate students.

COURSE OUTCOMES: After successful completion of the course, students will be able to:

CO5. Formulate problem based on the review program specific literature on a chosen topic.

CO6. Demonstrate teaching capabilities on discipline specific topics at under graduate level.

CO-PO-PSO Mapping Table:

Course Outcomes	Program Outcomes								Program Specific Outcomes		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	3	3	1	1	3	-	2	3	3	3
CO2	3	1	1	-	-	3	-	2	3	3	3
Course Correlation Mapping	**3**	**2**	**2**	**1**	**1**	**3**	**-**	**2**	**3**	**3**	**3**

Correlation Levels: 3: High; 2: Medium; 1: Low

Note:

Applicable to Literature Review and Teaching–IV-1 Credit.

Literature Review and Teaching–IV- 1 Hour/Week

SCHOOL CORE

Course Code	Course Title	L	T	P	S	C
22AB211001	**COMMUNITY CAMP – I**	-	-	-	-	1

Pre-Requisite -
Anti-Requisite -
Co-Requisite -

COURSE DESCRIPTION: This course deals with community physiotherapy includes community-based rehabilitation for disabled, incorporating physical activity and education for people with chronic conditions, women's health, geriatric health. Awareness on physiotherapy in enhancing quality of life.

COURSE OUTCOMES: After successful completion of the course, students will be able to:

CO1. Understand the importance of physiotherapy at community level in enhancing the quality of life.

CO2. Knowledge on prevention and health promotion of communicable diseases.

CO-PO-PSO Mapping Table:

Course Outcomes	Program Outcomes								Program Specific Outcomes		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	3	3	1	1	3	-	2	3	3	3
CO2	3	1	1	1	1	3	-	2	3	3	3
Course Correlation Mapping	**3**	**2**	**2**	**1**	**1**	**3**	**-**	**2**	**3**	**3**	**3**

Correlation Levels: ***3: High;*** ***2: Medium;*** ***1: Low***

Note: Applicable to Literature Review and Teaching–I & II.

SCHOOL CORE

Course Code	Course Title	L	T	P	S	C
22AB211002	**COMMUNITY CAMP – II**	-	-	-	-	1

Pre-Requisite - 22AB211001- Community Camp – I

Anti-Requisite -

Co-Requisite -

COURSE DESCRIPTION: This course deals with community physiotherapy includes community-based rehabilitation for disabled, incorporating physical activity and education for people with chronic conditions, women's health, geriatric health. Awareness on physiotherapy in enhancing quality of life.

COURSE OUTCOMES: After successful completion of the course, students will be able to:

CO3. Understand the importance of physiotherapy at community level in enhancing the quality of life.

CO4. Knowledge on prevention and health promotion of communicable diseases.

CO-PO-PSO Mapping Table:

Course Outcomes	Program Outcomes								Program Specific Outcomes		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	3	3	1	1	3	-	2	3	3	3
CO2	3	1	1	1	1	3	-	2	3	3	3
Course Correlation Mapping	**3**	**2**	**2**	**1**	**1**	**3**	**-**	**2**	**3**	**3**	**3**

Correlation Levels: ***3: High;*** ***2: Medium;*** ***1: Low***

Note: Applicable to Literature Review and Teaching–II & III.

SCHOOL CORE

Course Code	Course Title	L	T	P	S	C
22PT201007	**RESEARCH METHODOLOGY AND BIOSTATISTICS**	4	-	-	-	4

Pre-Requisite -

Anti-Requisite - 22PT201001- Research Methodology For Biostatistics

Co-Requisite -

COURSE DESCRIPTION: The course is developed for the students to understand the underlying concepts of research methodology and a systematic approach for carrying out research in the domain of interest. The course is emphasised on developing skills to recognise and reflect the strength and limitation of different types of research; data collection methods, methods of Processing and analysing data. The course also emphasises on interpreting the findings and research articulating skills.

COURSE OUTCOMES: After successful completion of the course, students will be able to:

CO1. Demonstrate the underlying concepts of research methodology, types of research and the systematic research process and philosophy of research design.

CO2. Demonstrate the philosophy of formulation of research problem, methods of data collection, review of literature and formulation of working hypothesis.

CO3. Demonstrate the philosophy of biostatistics and its relevance to research methodology for carrying research in the domain.

CO4. Analyze various data processing & techniques and their significance in research.

CO5. Develop skills to interpret the findings and research articulating skills along with the ethics of research.

CO-PO-PSO Mapping Table:

Course Outcomes	Program Outcomes								Program Specific Outcomes		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	-	-	-	-	-	-	-	3	-	-
CO2	3	2	1	-	-	-	-	-	3	-	-
CO3	3	1	-	-	-	-	-	-	3	-	-
CO4	3	3	2	-	-	-	-	-	3	-	-
CO5	3	2	1	-	-	3	-	1	3	-	-
Course Correlation Level	**3**	**2**	**2**	**-**	**-**	**3**	**-**	**1**	**3**	-	-

Correlation Levels: ***3: High;*** ***2: Medium;*** ***1: Low***

COURSE CONTENT

Module 1: INTRODUCTION TO RESEARCH METHODOLOGY ***(10 Periods)***

Meaning of Research, Objectives of Research, Motivation in Research, Types of Research, Research Approaches, Significance of Research, Research and Scientific Method, Research Process, Criteria of Good Research. Research design—Basic Principles, Need of research design, Features of good design, Basic principles of experimental designs,

Module 2: RESEARCH PROBLEM FORMULATION ***(10 Periods)***

Defining and formulating the research problem - Selecting the problem - Necessity of defining the problem - Importance of literature review in defining a problem – Data collection – Primary and secondary sources; Critical literature review – Identifying gap areas from literature review, Development of working hypothesis.

Module 3: INTRODUCTION TO BIOSTATISTICS ***(12 Periods)***

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, Variables and their types, Measurement scales.

Module 4: STATISTICAL ANALYSIS OF DATA ***(18 periods)***

Need for measures of central Tendency: mean, median and mode, Guidelines for the use of various measures of central tendency, Standard deviation; Need for sampling - Criteria for good samples, Application of sampling in community, Procedures of sampling and sampling designs errors; Correlation and Regression; Analysis of variance (ANOVA): Basic principle of ANOVA, ANOVA technique; Normal distribution.

Module 5: INTERPRETATION AND REPORT WRITING ***(10 Periods)***

Interpretation: Meaning of interpretation; Techniques of interpretation; Precautions in Interpretation.

Report Writing:

Significance, Different Steps, Layout, Types of reports, Mechanics of Writing a Scientific Research Reports and journals, Precautions in Writing Reports-Plagiarism, Critics in the research.

Total Periods: 60

EXPERIENTIAL LEARNING

5. Conduct a survey based on a hypothesis, analyze the data collected and draw the inferences from the data.
6. Review the literature on the given topic and should identify the scope/gaps in the literature and develop a research hypothesis.
7. Study a case, formulate the hypothesis and identify an appropriate testing technique for the hypothesis.
8. Study an article and submit a report on the inferences and should interpret the findings of the article.

BOOKS:

1. C.R. Kothari, *Research Methodology: Methods and Techniques*, New Age International Publishers, 2nd revised edition, New Delhi, 2004.
2. Mahajan: methods in biostatistics for medical students & research workers. Jaypee Brothers Medical Publishers; 9th edition (28th February 2018)
3.
4. R. Panneerselvam, *Research Methodology*, PHI learning Pvt. Ltd., 2009.
5. Carolyn M. Hicks: Research methodology for clinical therapist. Churchill Livingstone; 5th edition (7th August 2009)

VIDEO LECTURES:

1. https://nptel.ac.in/courses/121106007
2. https://onlinecourses.nptel.ac.in/noc22_ge08/preview
3. https://www.youtube.com/watch?v=VK-rnA3-41c

Web Resources:

1. https://www.scribbr.com/category/methodology/
2. https://leverageedu.com/blog/research-design/
3. https://prothesiswriter.com/blog/how-to-formulate-research-problem
4. https://www.formpl.us/blog/hypothesis-testing
5. https://www.datapine.com/blog/data-interpretation-methods-benefits-problems/
6. https://leverageedu.com/blog/report-writing/

SCHOOL CORE

Course Code	Course Title	L	T	P	S	C
22MG207601	**PROJECT MANAGEMENT**	2	-	-	-	2

Pre-Requisite -

Anti-Requisite -

Co-Requisite

COURSE DESCRIPTION: To understand the importance of decision-making while implementing any project and interpret and discuss the results of qualitative and quantitative analysis

COURSE OUTCOMES: After successful completion of the course, students will be able to:

CO1 Understand the basic introduction to project management

CO2 Apply the methods of project identification and selection.

CO3 Understand project allocation methods and evaluation.

CO4 Analyse the techniques for project time, review, and cost

CO5 Understand the factors of risk and quality of a project.

CO-PO Mapping Table:

Course Outcomes	Program Outcomes								
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**
CO1	2	1	2	1	-	-	-	-	-
CO2	1	1	2	2	-		2		1
CO3	2	2	1	2	1	-	-	1	-
CO4	3	1	2	2	1	-	-	-	-
CO5	2	2	1	2	1	1	-	-	-
Course Correlation Mapping	**2**	**2**	**2**	**2**	**1**	**1**	**2**	**1**	**1**

Correlation Levels: 3: High; 2: Medium; 1: Low

COURSE CONTENT

Module 1: Introduction ***(05 Periods)***

Concept of project management, project definition and key features of projects, project life cycle phases, typical project management issues, basic project activities

Module 2: Project Identification and Selection ***(06 Periods)***

Identification and screening (brainstorming, strength and weakness in the system, environmental opportunities and threats), Project evaluation methods- Payback period, Net present value, Internal rate of return and project evaluation under uncertainty.

Module 3: Project Resource Management ***(07 Periods)***

Scheduling resources, resource allocation methods, project crashing and resource leveling, working of systems, design of systems, project work system design, project execution plan, project procedure manual project control system, planning scheduling and monitoring

Module 4: Time and Cost Management ***(05 Periods)***

Time Management-Network diagram, forward and backward pass, critical path, PERT and CPM, AOA and AON methods, tools for project network, Cost management-earned value method

Module 5: Risk and Quality Management ***(07 Periods)***

Risk identification, types of risk, risk checklist, risk management tactics, risk mitigation and contingency planning, risk register, communication management, Quality assurance and quality control, quality audit, methods of enhancing quality

Total Periods: 30

EXPERIENTIAL LEARNING

1. Refer to any video lecture on project evaluation methods and give a brief seminar using PPT

2. Select any company wherein you will get the details of activities and time and draw the project network diagram and submit a report.

3.

Activity	Predecessor Activity	Normal Time (Weeks)	Crash Time (Weeks)	Normal Cost (Rs.)	Crash Cost (Rs.)
A	-	4	3	8,000	9,000
B	A	5	3	16,000	20,000
C	A	4	3	12,000	13,000
D	B	6	5	34,000	35,000
E	C	6	4	42,000	44,000
F	D	5	4	16,000	16,500
G	E	7	4	66,000	72,000
H	G	4	3	2,000	5,000

Determine a crashing scheme for the above project so that the total project time is reduced by 3 weeks

4. Collect any case study that discusses the process of probability calculation of success of the project and submit a report

RESOURCES

TEXT BOOKS:

1. R.Panneerselvam and P.Senthil Kumar (2013), Project Management, PHI Learning Private Limited.
2. Prasanna Chandra (2014), Projects: Planning, Analysis, Selection, Financing, implementation, and Review.

REFERENCE BOOKS:

1. A Guide to the Project Management Body of Knowledge: (PMBOK Guide) by Project Management Institute, 2013.
2. Gopala Krishnan & Rama Murthy, A Text book of Project Management, McMillan India.
3. S. Choudhary (2004), Project Management, Tata McGraw Hill Publication.

VIDEO LECTURES:

1. https://onlinecourses.nptel.ac.in/noc19_mg30/preview
2. https://archive.nptel.ac.in/courses/110/104/110104073/

Web Resources:

1. https://www.pmi.org/about/learn-about-pmi/what-is-project-management
2. https://www.manage.gov.in/studymaterial/PM.pdf

MANDATORY COURSES

Course Code	Course Title	L	T	P	S	C
22PT201008	**ESSENTIALS OF BUSINESS ETIQUETTES**	2	-	-	-	2

Pre-Requisite

Anti-Requisite

Co-Requisite -

COURSE DESCRIPTION: This course is designed for learners who desire to improve their Business etiquette and professionlaism.

COURSE OUTCOMES: After successful completion of the course, students will be able to:

CO1. learn the principles of business etiquettes and professional behavior

CO2. understand the etiquettes for making business correspondence effective

CO3. Develop awareness of dining and multicultural etiquettes

CO4. Demonstrate an understanding of professionalism in terms of workplace behaviors and workplace relationships.

CO5. Understand attitudes and behaviors consistent with standard workplace expectations.

CO-PO Mapping Table:

Course Outcomes	Program Outcomes											
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1	1	1	-	-	-	1	-	-	-	-	-	-
CO2	1	1	2	1	-	1	-	-	-	-	-	-
CO3	2	-	2	-	1	-	-	-	-	2	-	-
CO4	1	2	-	1	-	-	-	-	-	2	-	-
CO5	1	2	1	-	-	-	-	-	-	2	2	-
Course Correlation Mapping	**2**	**2**	**2**	**1**	**1**	**1**	**-**	**-**	-	**2**	**2**	**-**

Correlation Levels: 3: High; 2: Medium; 1: Low

COURSE CONTENT

Module 1: Business Etiquettes- An Overview ***(06 Periods)***

Significance of Business Etiquettes in 21st Century- Professional Advantage; Need and Importance of Professionalism; Workplace Etiquette: Etiquette for Personal Contact- Personal Appearance, Gestures, Postures, Facial Expressions, Eye-contact, Space distancing

Module 2: Communication Skills ***(06 Periods)***

Understanding Human Communication, Constitutive Processes of Communication, Language as a tool of communication, Barriers to Effective communication, and Strategies to Overcome the Barriers.

Module 3: Teamwork and Leadership Skills ***(06 Periods)***

Concept of Teams; Building effective teams; Concept of Leadership and honing Leadership skills. Personality: Meaning & Definition, Determinants of Personality, Personality Traits, Personality and Organisational Behaviour Motivation: Nature & Importance, Herzberg's Two Factor theory, Maslow's Need Hierarchy theory, Alderfer's ERG theory

Module 4: Interview Skills ***(06 Periods)***

Interview Skills: in-depth perspectives, Interviewer and Interviewee, Before, During and After the Interview, Tips for Success. Meeting Etiquette: Managing a Meeting-Meeting agenda, Minute taking,; Duties of the chairperson and secretary; Effective Meeting Strategies - Preparing for the meeting, Conducting the meeting, Evaluating the meeting

Module 5: Decision-Making and Problem-Solving Skills ***(06 Periods)***

Decision-Making and Problem-Solving Skills: Meaning, Types and Models, Group and Ethical Decision-Making, Problems and Dilemmas in application of these skills. Conflict Management: Conflict - Definition, Nature, Types and Causes; Methods of Conflict Resolution.

Total Periods:30

EXPERIENTIAL LEARNING

LIST OF EXPERIMENTS:

1. Collect the case studies related to successful leaders and their traits.
2. Conduct a mock interview showcasing interview skills.
3. The case studies will be collected as Assignments and the same will be evaluated.

RESOURCES

TEXT BOOKS:

1. Barbara Pachter, Marjorie Brody. Complete Business Etiquette Handbook. Prentice Hall, 2015.
2. Mahanand, Anand. English for Academic and Professional Skills. Delhi: McGraw, 2013. Print.

REFERENCE BOOKS:

1. Pease, Allan and Barbara Pease. The Definitive Book of Body Language. New Delhi: Manjul Publishi
2. Rani, D Sudha, TVS Reddy, D Ravi, and AS Jyotsna. A Workbook on English Grammar and Compos

VIDEO LECTURES:

1. https://www.youtube.com/watch?v=NqlfZOPMqjA
2. http://www.nitttrc.edu.in/nptel/courses/video/109104107/L24.html

Web Resources:

1. http://elibrary.gci.edu.np/bitstream/123456789/685/1/BM-783%20The%20Essential%20Guide%20to%20Business%20Etiquette%20by%20Lillian%20H.%20C
2. The Essentials of Business Etiquette: How to Greet, Eat, and Tweet Your Way to Success by Barb (everand.com)

SCHOOL CORE

Course Code	Course Title	L	T	P	S	C
22CE201701	**DISASTER MANAGEMENT**	3	-	-	-	3

Pre-Requisite -

Anti-Requisite -

Co-Requisite -

COURSE DESCRIPTION: This course provides a detailed discussion on disaster prone areas in India, repercussions of disasters and hazards, disaster preparedness and management, risk assessment and disaster management.

COURSE OUTCOMES: After successful completion of the course, students will be able to:

CO1. Analyze the vulnerability of an area to natural and man-made disasters/hazards as per the guidelines to solve complex problems using appropriate techniques ensuring safety, environment and sustainability.

CO2. Analyze the causes and impacts of disasters using appropriate tools and techniques and suggest mitigation measures ensuring safety, environment and sustainability besides communicating effectively in graphical form.

CO3. Suggest the preparedness measures using appropriate tools and techniques and suggest mitigation measures ensuring safety, environment and sustainability.

CO4. Analyze the Risk Assessment using appropriate tools and techniques and suggest mitigation measures ensuring safety, environment and sustainability.

CO5. Design disaster management strategies to solve pre, during and post disaster problems using appropriate tools and techniques following the relevant guidelines and latest developments ensuring safety, environment and sustainability besides communicating effectively in graphical form.

CO-PO Mapping Table:

Course Outcomes	Program Outcomes											
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	-	2	2	2	2	2	-	-	-	-
CO2	3	3	-	2	2	2	2	-	-	2	-	-
CO3	3	3	-	2	2	2	2	-	-	-	-	-
CO4	3	3	-	3	2	2	2	-	-	-	-	-
CO5	3	2	3	2	2	2	1	2	-	1	3	2
Course Correlation Mapping	**3**	**3**	**3**	**3**	**2**	**2**	**2**	**2**	**-**	**2**	**3**	**2**

Correlation Levels: 3: High; 2: Medium; 1: Low

COURSE CONTENT

Module 1: DISASTER PRONE AREAS IN INDIA ***(09 Periods)***

Introduction: Disaster: Definition, Factors and Significance; Difference Between Hazard and Disaster; Natural and Manmade Disasters: Difference, Nature, Types And Magnitude. **Disaster Prone Areas:** Study Of Seismic Zones; Areas Prone To Floods And Droughts, Landslides And Avalanches; Areas Prone To Cyclonic And Coastal Hazards With Special Reference To Tsunami; Post-Disaster Diseases And Epidemics.

Module 2: REPERCUSSIONS OF DISASTERS AND HAZARDS ***(09 Periods)***

Economic Damage, Loss of Human and Animal Life, Destruction of Ecosystem. Natural Disasters: Earthquakes, Volcanisms, Cyclones, Tsunamis, Floods, Droughts And Famines, Landslides And Avalanches, Man-made disaster: Nuclear Reactor Meltdown, Industrial Accidents, Oil Slicks And Spills, Outbreaks Of Disease And Epidemics, War And Conflicts.

Module 3: DISASTER PREPAREDNESS AND MANAGEMENT ***(11 Periods)***

Preparedness: Monitoring Of Phenomena Triggering A Disaster Or Hazard; Evaluation Of Risk: Application Of Remote Sensing, Data From Meteorological And Other Agencies, Media Reports: Governmental And Community Preparedness.

Module 4: RISK ASSESSMENT ***(08 Periods)***

Disaster Risk: Concept and Elements, Disaster Risk Reduction, Global and National Disaster Risk Situation. Techniques of Risk Assessment, Global Co-Operation In Risk Assessment And Warning, People's Participation In Risk Assessment. Strategies for Survival.

Module 5: DISASTER MANAGEMENT ***(08 Periods)***

Disaster management organization and methodology, Disaster management cycle, Disaster management in India – Typical cases and Cost–benefit analysis, Disaster management programs implemented by NGOs and Government of India, Usage of GIS and Remote sensing techniques in disaster management, Leadership and Coordination in Disaster management, Emerging trends in disaster management.

Total Periods: 45

EXPERIENTIAL LEARNING

1. Perform hazard assessment and vulnerability analysis for any nearby town/city and prepare a detailed report of possible impacts of various disasters on environment, infrastructure and development.
2. Prepare a detailed report on the causes and effects of Tsunami that was occurred in the year 2004. Also discuss various advancements in Tsunami warning systems.
3. Identify the major causes of urban floods in cities like Chennai, Hyderabad & Mumbai. Also list various mitigation strategies to reduce the impact of floods.
4. Prepare a detailed report on how various man-made activities are directly/indirectly related to the occurrence of landslides that occurred in recent days in India.

5. Visit AP State Disaster Response and Fire Services Department and record about various methods used by them in mitigating disasters and their management.

RESOURCES

TEXT BOOKS:

1. Sharma V. K., *Disaster Management, MedTech Publishing, 2nd Edition, 2013*.
2. Anand S. Arya, Anup Karanth, and Ankush Agarwal, *Hazards, Disasters and Your Community: A Primer for Parliamentarians*, GOI–UNDP Disaster Risk Management Programme, Government of India, National Disaster Management Division, Ministry of Home Affairs, New Delhi, Version 1.0, 2005

REFERENCE BOOKS:

1. Donald Hyndman and David Hyndman, *Natural Hazards and Disasters*, Cengage Learning, USA, 5th Edition, 2015.
2. *Disaster Management in India,* A Status Report, Ministry of Home Affairs, Govt. of India, May 2011.
3. Rajendra Kumar Bhandari, *Disaster Education and Management: A Joyride for Students, Teachers, and Disaster Managers*, Springer India, 2014.
4. Singh R. B., *Natural Hazards and Disaster Management*, Rawat Publications, 2009.
5. R. Nishith, Singh AK, *Disaster Management in India: Perspectives, issues and strategies,* New Royal book Company.
6. Sahni, PardeepEt.Al. (Eds.), *Disaster Mitigation Experiences And Reflections*, Prentice Hall of India, New Delhi.
7. Goel S. L. , *Disaster Administration And Management Text And Case Studies*, Deep &Deep Publication Pvt. Ltd., New Delhi

VIDEO LECTURES:

1. https://nptel.ac.in/courses/105104183
2. https://www.digimat.in/nptel/courses/video/124107010/L01.html

WEB RESOURCES:

1. https://egyankosh.ac.in/handle/123456789/25093
2. https://www.egyankosh.ac.in/handle/123456789/25912
3. https://www.nios.ac.in/media/documents/333courseE/12.pdf
4. https://ndmindia.mha.gov.in/images/public-awareness/Primer%20for%20Parliamentarians.pdf

SCHOOL CORE

Course Code	Course Title	L	T	P	S	C
22CM207601	ESSENTIALS OF LEADERSHIP	2	-	-	-	2

Pre-Requisite -

Anti-Requisite -

Co-Requisite -

COURSE DESCRIPTION: This course introduces undergraduate students to fundamental leadership concepts, self-management skills, teamwork, ethical leadership, and professional responsibility. It prepares students to function as effective leaders in healthcare and academic environments.

COURSE OUTCOMES: After successful completion of the course, students will be able to:

CO1. Understand basic leadership concepts, styles, and theories

CO2. Demonstrate self-awareness, emotional intelligence, and interpersonal skills

CO3. Apply leadership and communication skills in teamwork and problem-solving

CO4. Exhibit ethical, professional, and socially responsible leadership behaviors

Course Outcomes	Program Outcomes											
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	-	2	2	2	2	2	-	-	-	-
CO2	3	3	-	2	2	2	2	-	-	2	-	-
CO3	3	3	-	2	2	2	2	-	-	-	-	-
CO4	3	3	-	3	2	2	2	-	-	-	-	-
Course Correlation Mapping	**3**	**3**	**3**	**3**	**2**	**2**	**2**	**2**	**-**	**2**	**3**	**2**

Correlation Levels: 3: High; 2: Medium; 1: Low

Module 1: FOUNDATIONS OF LEADERSHIP ***(08 Periods)***

Meaning and importance of leadership, Difference between leadership and management, Leadership styles: Autocratic, Democratic, Laissez-faire, Transformational, Qualities of an effective leader, Leadership in healthcare and academics

Module 2: SELF-LEADERSHIP AND EMOTIONAL INTELLIGENCE ***(07 Periods)***

Self-awareness and self-management, Emotional intelligence: components and importance, Motivation and goal setting, Stress management and resilience, Time management for leaders

Module 3: COMMUNICATION AND TEAM LEADERSHIP ***(08 Periods)***

Effective communication skills (verbal, non-verbal, listening), Team dynamics and group behavior, Conflict management and negotiation, Decision-making and problem-solving skills, Leadership roles in multidisciplinary teams

Module 4: ETHICAL AND PROFESSIONAL LEADERSHIP ***(07 Periods)***

Ethics and values in leadership, Professional responsibility and accountability, Social responsibility and community leadership, Leadership challenges in healthcare settings, Developing leadership skills for future careers

Total Periods: 45

EXPERIENTIAL LEARNING

1 Students maintain a reflective journal on personal leadership strengths and weaknesses, Emotional intelligence experiences, Stress management and time management practices

2 Students perform role plays on team leadership scenarios, Conflict resolution in healthcare settings, Decision-making under pressure

3 Analysis of real-life leadership cases in healthcare institutions, Community health programs, Academic leadership situations

4 Small group task such as organizing a health awareness program, Leading a peer-learning session, Planning a simulated clinical team workflow

5 Peer Feedback & Self-Assessment on structured peer evaluation on leadership behavior during activities, Self-assessment using leadership trait checklists

RESOURCES

TEXT BOOKS:

3. Northouse, P. G. *Leadership: Theory and Practice*, Sage Publications
2. Goleman, D. *Emotional Intelligence*, Bantam Books
3. Covey, S. R. *The 7 Habits of Highly Effective People*, Free Press
4. Maxwell, J. C. *Developing the Leader Within You*, HarperCollins

VIDEO LECTURES:

3. https://nptel.ac.in/courses/105104183
4. https://www.digimat.in/nptel/courses/video/124107010/L01.html

WEB RESOURCES:

5. https://egyankosh.ac.in/handle/123456789/25093
6. https://www.egyankosh.ac.in/handle/123456789/25912
7. https://www.nios.ac.in/media/documents/333courseE/12.pdf
8. https://ndmindia.mha.gov.in/images/public-awareness/Primer%20for%20Parliamentarians.pdf

PROGRAM CORE

Course Code	Course Title	L	T	P	S	C
22PT201002	**PRINCIPLES OF PHYSIOTHERAPY PRACTICE**	2	-	-	-	2
Pre-Requisite	-					
Anti-Requisite	-					
Co-Requisite	-					

COURSE DESCRIPTION: This course provides a detailed discussion on physiotherapy principles, legal issues, and evidence-based physiotherapy practice.

COURSE OUTCOMES: After successful completion of the course, students will be able to:

CO1. Demonstrate ethical, legal, rules and regulations of statutory bodies in physiotherapy practices.

CO2. Demonstrate the managerial skills and opportunities available at various sectors in physiotherapy practice.

CO3. Analyse and interpret various tests and scales in physiotherapy practices

CO4. Apply appropriate tests to assess the condition of the patient and recommend suitable treatment by following ICF standards.

CO5. Demonstrate the teaching, learning and counselling skills in physiotherapy education

CO-PO-PSO Mapping Table:

Course Outcomes	Program Outcomes								Program Specific Outcomes		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	2	-	-	3	-	-	1	1	3	-	-
CO2	3	-	-	-	-	2	3	-	3	-	-
CO3	3	3	2	-	-	-	-	-	3	-	-
CO4	3	2	3	1	-	1	-	-	3	-	-
CO5	3	-	2	-	-	3	-	-	3	-	-
Course Correlation Mapping	**3**	**3**	**2**	**2**	**-**	**2**	**2**	**1**	**3**	-	-

Correlation Levels: 3: High; 2: Medium; 1: Low

COURSE CONTENT

Module 1: Introduction to Physiotherapy Ethics & Legal issues ***(04 Periods)***

Development of Physiotherapy Profession, Legal aspects in Physiotherapy Practice, Ethical issues in Practice of Physiotherapy– Clinical, Research & Academics. Administration, Legislation, Rules & Regulations governing Physiotherapy Practice. Future challenges in Physiotherapy.

Module 2: Standards and scope of Physiotherapy ***(07 Periods)***

Scope of Physiotherapy in Hospital, Community & Industry. Planning, organization, budget, policy procedures and quality assurance. Communication skills, leadership in Physiotherapy. Roles of thephysiotherapist. Standards for practice for physiotherapist and the criteria. Standardized tests and scales used in various types of cases for assessment and interpretation in Physiotherapy practice.

Module 3: Principles of Assessment, Management & Documentation ***(07 Periods)***

History taking, assessment, tests, Patient communication, documentation of findings, treatment organization and planning/execution for intervention. Documentation of rehabilitation assessment and management using International Classification of Functioning Disability and Health(ICF).

Module 4: Concepts of Teaching & Learning in Physiotherapy Education ***(07 Periods)***

Concepts of teaching and learning a) Theories of teaching b) relationship between Teaching and learning c) psychology of education d) Motivational process of learning perception, individual differences, intelligence, personality.

Module 5: Principles of Guidance & Counselling & Methods of Teaching (05 Periods)

Guidance and counseling Principles and concepts, guidance and counseling services of studentsandfaculty. Mentorship in Physiotherapy, Principles and methods of teaching a) Strategies of teaching b)planning of teaching c) Organization d) writing lesson plans e) Audio-visual aids f) Teaching methods.

Total Periods: 30

EXPERIENTIAL LEARNING

1. How to improve the standards and future challenges of physiotherapy practice
2. Case studies of Legal issues in physiotherapy practice
3. Assessment of various tests and scales in physiotherapy
4. Demonstration of various teaching methods in physiotherapy education
5. Leadership versus Mentorship and its role in physiotherapy

RESOURCES

BOOKS:

1. Katherine K.Johnson: Bio ethics in Physical therapy; Cognella, Inc., publisher, 2022.
2. Barbara: Ethics in Rehabilitation; Slack publishers, 2nd Edition, 2012.
3. Nancy Kirsch: Professional issues & Ethics in Physical therapy- A case based approach; McGraw Hill publishers,2nd Edition. 2022.
4. John Swain: The use of Counselling Skills; BH/Elsevier publisher, 1995.
5. Joy: Clinical Reasoning in the health professions; BH/Elsevier publisher,3rd Edition, 2008.
6. Dr.Rajendra Rajput: Essentials of community physiotherapy & Ethics; Medico refresher publications, 2019.
7. Jennifer Green-Wilson: Learning to lead in Physical therapy; Slack Publications, 1st Edition, 2020.

VIDEO LECTURES:

1. https://youtu.be/bf1Wzy1amuw
2. https://youtu.be/iFwZrNAeHks
3. https://youtu.be/zU5_4kc0GjY

WEB RESOURCES:

1. https://www.physio-pedia.com/Ethics
2. https://world.physio/sites/default/files/2022-03/PS-2022-Ethical_responsibilities_principles_Eng.pdf
3. https://collegeofphysiotherapy.com/the-iap-ethical-rules-regulations/
4. https://www.researchgate.net/publication/323934923_Medico-Legal_Practice_and_Physiotherapy_A_Study_in_Mekelle_Ethiopia
5. https://ncert.nic.in/textbook/pdf/lehe108.pdf
6. https://www.physiospot.com/2021/01/25/blended-learning-for-physiotherapy-education/

PROGRAM CORE

Course Code	Course Title	L	T	P	S	C
22PT202001	**EXERCISE PHYSIOLOGY AND NUTRITION**	4	-	2	-	5

Pre-Requisite -

Anti-Requisite -

Co-Requisite -

COURSE DESCRIPTION: This course provides a detailed discussion on nutrition, energy metabolism & transfer, measurement of energy expenditure & energy conservation in different physical states and body composition & obesity control.

COURSE OUTCOMES: After successful completion of the course, students will be able to:

CO1. Demonstrate the influence of nutrition & special aids on physical performance.

CO2. Analyse and evaluate energy transfer, energy expenditure in different states of Physical activity.

CO3. Demonstrate the exercises and its effects on various systems of human body.

CO4. Analyse the effects on human body under various environmental conditions and suggesting appropriate training.

CO5. Evaluate the client fitness, clinical condition, geriatric problems and recommending appropriate exercises.

CO-PO-PSO Mapping Table:

Course Outcomes	Program Outcomes								Program Specific Outcomes		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	-	2	1	-	-	-	-	3	-	3
CO2	3	3	2	-	-	-	-	-	3	-	3
CO3	3	1	-	-	-	-	-	-	3	-	3
CO4	3	3	3	-	-	-	-	-	3	-	3
CO5	3	3	3	1	-	-	-	-	3	-	3
Course Correlation Mapping	**3**	**3**	**3**	**1**	**-**	**-**	**-**	**-**	**3**	**-**	**3**

Correlation Levels: 3: High; 2: Medium; 1: Low

COURSE CONTENT

Module 1: Introduction to Nutrition and Metabolism ***(10 Periods)***

Macro nutrients & Micro nutrients, Importance of water in exercise. Fatigue & its Assessment and how to control fatigue. Ergogenic aids/Special aids in sports performance. Carbohydrate, Protein & fat metabolism. Metabolic mill.

Module 2: Energy transfer and Energy expenditure on activities ***(15 Periods)***

Energy transfer in exercise, Measurement of Human energy expenditure. Human energy expenditure during rest and physical activity, Energy expenditure during walking jogging, running and swimming. Individual differences and measurement of energy capacities.

Module 3: Effect of exercise on various systems ***(10 Periods)***

Responses and adaptations of the following systems to exercise and training: the cardio-pulmonary system, the musculoskeletal system, the nervous system, and the endocrine system.

Module 4: Environment influence & Exercise Performance ***(10 Periods)***

Mechanism of thermo regulation, Thermoregulation and environmental stress during exercise. Exercises at medium & High altitude. Sport diving, Microgravity- the cost frontier. Principles of Exercise Training, Enhancement of energy capacity - Training for anaerobic and aerobic power. Muscular strength: Training muscles to become stronger – Strength measurement and resistance training. Structural and functional adaptations to resistance training.

Module 5: Body composition, Assessment, Weight control & Prescription of Exercises **(15 Periods)**

Body composition & Assessment, energy balance and physique, performance and physical activity, obesity and weight control. Exercise, successful aging and disease prevention. Aging and physiologic function, Physical activity, health and longevity, Coronary-heart disease. Clinical exercise prescription for cancer, cardiovascular and pulmonary Rehabilitation

Total Periods: 60

EXPERIENTIAL LEARNING

LIST OF EXPERIMENTS:

1. Influence of Nutrition & Special aids on Exercise Performance.
2. Measurement of Human energy Expenditure, Total daily energy expenditure & advice on Diet.
3. Demonstration of the exercises and its influence on cardio pulmonary system & other systems.
4. Measurement of Aerobic & Anaerobic Capacities.
5. Assessment of body composition & required exercise selection.

RESOURCES

BOOKS:

1. Axen: Illustrated principles of exercise physiology, Pearson publication, 2000.
2. Katch: Exercise physiology, energy nutrition, and humanperformance;Wolters Kluwer Health publication; 9th International Edition, 2022.
3. Shyamal Oley: Essentials of Exercise Physiology; Jaypee Brothers Medical Publishers, 1st Edition, 2018.
4. Swapankumardey: A textbook of sports & exercise physiology; Jaypee Brothers Medical Publishers; 2nd Edition, 2022.
5. Wilmore: Physiology of sport & Exercise. Human Kinetics publishers; 8th Edition, 2021.
6. Stephen R. Bird: Exercise physiology for health professionals; Nelson Thornes publishers Ltd, 1997

VIDEO LECTURES:

1. https://youtu.be/LtO-DzWj0fc
2. https://youtu.be/aq4TQ_0-oz4
3. https://youtu.be/QAiw_QtDaWI
4. https://youtu.be/xUr6tS7QSdM
5. https://youtu.be/xQgYu4p1hvc
6. https://youtu.be/tBCtVoHTMzU

WEB RESOURCES:

1. https://www.pdfdrive.com/
2. https://www.physio-pedia.com/Principles_of_Exercise
3. https://nzihf.ac.nz/personal-training/exercise-principles/

   https://sirc.ca/blog/environmental-factors-in-exercise-and-sports-performance/

   https://www.physio-pedia.com/Body_Composition

   https://www.physio-pedia.com/Exercise_Endocrine_System_Interaction

PROGRAM CORE

Course Code	Course Title	L	T	P	S	C
22PT202002	**CLINICAL ELECTROPHYSIOLOGY**	5	-	2	-	6

Pre-Requisite -

Anti-Requisite -

Co-Requisite -

COURSE DESCRIPTION: This course provides a detailed discussion about various clinical modalities of electrophysiology.

COURSE OUTCOMES: After successful completion of the course, students will be able to:

CO1. Demonstrate the Excitable tissue of Nerve and Muscle in clinical electrophysiology

CO2. Analyze and evaluate the nerve conduction studies in clinical physiology.

CO3. Assess the diagnostic modalities in clinical Electrophysiology.

CO4. Evaluate the Clinical application of Electromyography and nerve conduction velocity.

CO5. Trace the pathways of nerve and brain in Adults and Paediatric Practice and role in Clinical Neurophysiology.

CO-PO-PSO Mapping Table:

Course Outcomes	Program Outcomes								Program Specific Outcomes		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	1	2	-	-	-	-	-	3	-	-
CO2	3	2	3	-	-	-	-	-	3	-	-
CO3	3	3	3	-	-	-	-	1	3	-	-
CO4	3	3	3	-	-	-	-	2	3	-	-

Course Outcomes	Program Outcomes								Program Specific Outcomes		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	1	2	-	-	-	-	-	3	-	-
CO5	3	3	3	-	-	-	-	2	3	-	-
Course Correlation Mapping	**3**	**3**	**3**	**-**	**-**	**-**	**-**	**2**	**3**	-	-

Correlation Levels: 3: High; 2: Medium; 1: Low

COURSE CONTENT

Module 1: Introduction to Clinical Electrophysiology ***(10 Periods)***

History of Clinical Neurophysiology; An introduction to electro diagnostic signals and their measurements; Electrical events at synapse; chemical transmission of synaptic activity; Physiology of Pain, Electrical and ionic events in receptors; Electrical activity of the brain.

Introduction to Excitable tissue – Nerve, Excitation and Conduction, Measurement of Electrical Events, Ionic basis of Excitation and Conduction, Physiological basis of Nerve Conduction Tests.
Introduction to Excitable tissue –Muscle: Cardiac Muscle: Electrical Properties **Skeletal Muscle**: Electrical Phenomena and Ionic Fluxes, Contractile Responses
Smooth Muscle: Electrical Properties

Module 2: Introduction to Diagnostic Modalities in Clinical Electrophysiology ***(10 Periods)***

Introduction to Diagnostic Modalities: Electro Cardio Gram (ECG) and physiological basis of ECG, Cath lab, TMT; Electromyography (EMG) and physiological basis of EMG, ENMG; Electroencephalogram (EEG) – Physiological basis of EEG; X-ray, CTScan, MRI Scan, Doppler, Ultrasound, fluoroscopy.

Module 3: Nerve Conduction Study to upper and lower limbs ***(25 Periods)***

Principles of Nerve Conduction Study-Compound Motor Action Potential, Sensory Nerve Action Potential, F-Wave, H-Reflex, variables of NCV
Nerve Conduction Study to upper limb: Median nerve, Ulnar nerve, Radial nerve, Brachial plexus, Cervical Radiculopathy
Nerve Conduction Study to lower limb: Lumbar plexus**,** Sacral plexus**,** Lumbo sacral Radiculopathy**,** Anomalous innervations of the extremities**,**
Nerve conduction of nonlimbic nerves**,** Late responses**,** Autonomic nervous system testing

Module 4: Clinical application of Electromyography and nerve conduction Study ***(15 Periods)***

Electromyography (EMG): Introduction &Technique to EMG;
Clinical application of Electromyography and nerve conduction study: Electromyographic findings in neurological disorders, Nerve conduction and EMG studies in polyneuropathies;
Repetitive nerve stimulation (RNS); **Single fiber and macro electromyography.**

Module 5: Evoked Potential in Adult and Paediatrics **(15 Periods)**

Evoked Potential: Motor Evoked Potential**:** Sensory Evoked Potential: Visual Evoked Potential (SIGHT), Auditory Evoked Potential (SOUND), Somatosensory Evoked Potential (TOUCH), Cognitive Evoked Potential. **Electro diagnosis in Pediatric Practice:** Nerve Conduction and Electromyography, Sensory Evoked Potential in Pediatric Practice: Visual Evoked Potential in Pediatric Practice, Auditory Evoked Potential in Pediatric Practice, Somatosensory Evoked Potential in Pediatric Practice
Role of Clinical Neurophysiology in the Prognosis of Neuromuscular
Disorders

Total Periods: 75 Hours

EXPERIMENTAL LEARNING

LIST OF EXPERIMENTS:

1. Demonstrate the Excitable tissue of Nerve and Muscle in clinical electrophysiology
2. Analyze and evaluate the nerve conduction studies in clinical physiology.
3. Assess the diagnostic modalities in clinical Electrophysiology.
4. Evaluate the Clinical application of Electromyography and nerve conduction velocity.
5. How to predict the pathways of nerve and brain in Adults and Paediatric Practice and role in Clinical Neurophysiology.

RESOURCES

BOOKS

1. UK Misra |J Kalita, Clinical Neurophysiology, ELSEVIER, 4th Edition, 2019
2. Jun Kimura, OUP USA, Electro diagnosis in disease of nerve and muscle-, 4th Edition, 2014
3. Wall&Malzak's, Saunders, Text book of Pain,6th Edition, 2013
4. Nelson and Pearson, Clinical Electrotherapy,3rd Edition, 1999

VIDEO LECTURES:

1. https://youtu.be/auogbJFitmI
2. https://youtu.be/rqUlNdIIB50
3. https://youtu.be/xIZQRjkwV9Q
4. https://youtu.be/p38nzOGJZtI

WEB RESOURCES:

1. https://www.sciencedirect.com/journal/clinical-neurophysiology
   https://www.sciencedirect.com/journal/clinical-neurophysiology-practice
2. https://www.ifcn.info/clinical-neurophysiology.asp
3. https://www.elsevier.com/journals/clinical-neurophysiology/1388-2457?generatepdf=true
4. https://journals.physiology.org/journal/jn
5. https://www.frontiersin.org/articles/10.3389/fneur.2021.770791/full
6. https://www.mdpi.com/2077-0383/11/14/4184
7. https://www.sciencedirect.com/journal/clinical-neurophysiology
   https://www.sciencedirect.com/journal/clinical-neurophysiology-practice

PROGRAM CORE

Course Code	Course Title	L	T	P	S	C
22PT202003	**CLINICAL BIOMECHANICS AND KINESIOLOGY**	4		2	-	5

Pre-Requisite -

Anti-Requisite -

Co-Requisite -

COURSE DESCRIPTION: This course provides a detailed discussion about the knowledge of human joint Structure and the principles of biomechanics in clinical application.

COURSE OUTCOMES: After successful completion of the course, students will be able to:

CO1. Demonstrate the BiomechanicalApplicationstoJointStructureandFunction.

CO2. Analyze and Evaluate the Axial Skeletal, Upper and Lower ExtremityJointComplexes.

CO3. Trace out the DeterminantsofGait and Ergonomic Approach to lifting and handling.

CO4. Work independently and in teams to solve problems with effective communications.

Course Outcomes	Program Outcomes								Program Specific Outcomes		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	1	2	-	-	2	-	1	3	1	1
CO2	3	2	3	-	-	2	-	1	3	2	1
CO3	3	3	3	-	-	2	-	1	3	3	1
CO4	3	2	2	-	-	2	-	1	1	1	1
Course Correlation Level	**3**	**3**	**3**	**-**	**-**	**2**	**-**	**2**	**3**	**3**	**1**

Correlation Levels: 3: High; 2: Medium; 1: Low

COURSE CONTENT

Module 1: FOUNDATIONAL CONCEPTS OF JOINT STRUCTURE AND FUNCTION *(10 Periods)*

Biomechanical Applications to Joint Structure and Function:-General Kinematics and Kinetics of Joint Structure and Function.
Joint Structure and Function: General Changes with Disease,Injury,Immobilization,Exercise,and Overuse.
Muscle Structure and Function:-Effects of Immobilization,Injury,and Aging, Kinematics and Kinetics of Posture and Gait.

Module 2: AXIAL SKELETAL JOINT COMPLEXES *(08 Periods)*

Temporomandibular Joint:-Structure and Function of the Temporomandibular Joint, Age-Related Changes in the Temporomandibular Joint and Dysfunctions.

Vertebral Column:- Introduction to General Structure and Function of the Vertebral Column, Regional Structure and Functions of the Cervical Region, the Thoracic Region, the Lumbar Region and the Sacral Region, Muscles of the Vertebral Column-The Craniometrical / Upper Thoracic Regions, Lower Thoracic / Lumbopelvic Regions, Muscles of the Pelvic Floor, Effects of Aging.

Thorax and Chest Wall:-Introduction to General Structure and Function of Rib Cage, Muscles Associated With the Rib Cage, Coordination and Integration of Ventilatory Motions, Developmental Aspects of Structure and Function- Differences Associated with the Neonate and the Elderly, Pathological Changes in Structure and Function of Chronic Obstructive Pulmonary Disease.

Module 3: UPPER EXTREMITY JOINT COMPLEXES *(15Periods)*

Shoulder complex:-Introduction: Components of the shoulder complex- Sternoclavicular joint, Acromioclavicular joint, Scapulothoracic joint, Glenohumeral joint, Integrated function of the shoulder Complex-Scapulothoracic and Glenohumeral contributions, Sternoclavicular and acromioclavicular contributions, Structural Dysfunction, Muscles Of Elevation, Muscles of depression.

Elbow Complex:-Structure and Functions of Humeroulnar and Humeroradial joint; Structure of Superior and Inferior Radioulnar Joints; Mobility and Stability of Elbow Complex- Functional Activities, Relationship to the Hand and Wrist; Effects of Age and Injury.

Wrist and Hand Complex:- Structure and Functions of Radiocarpal and Midcarpal Joint of the Wrist Complex. The Hand Complex: Carpometacarpal, Metacarpophalangeal and Interphalangeal Joints of the Fingers, Extrinsic Finger Flexors and Extensors, Extensor Mechanism, Intrinsic Finger Musculature, Structure of the Thumb, Thumb Musculature;

Prehension: Power Grip, Precision Handling; Functional Position of the Wrist and Hand.

Module 4: LOWER EXTREMITY JOINT COMPLEXES *(15 Periods)*

Hip Complex- Structure and Function of the Hip Joint, Hip Joint Forces, and Muscle Function in Stance-Bilateral Stance, Unilateral Stance, Reduction of Muscle Forces in Unilateral Stance, Hip Joint Pathology: Arthrosis, Fracture, Bony Abnormalities of the Femur.

Knee Complex: Tibiofemoral Joint**:** Structure and Function of the Tibiofemoral Joint- Joint Kinematics, Muscles, Stabilizers of the Knee; Patellofemoral Joint: Patellofemoral Articular Surfaces and Joint

Congruence, Motions of the Patella, Patellofemoral Joint Stress, Frontal Plane Patellofemoral Joint Stability, Weight-Bearing vs. Non–Weight-Bearing Exercises with Patellofemoral Pain; Effects of Injury and Disease of Tibiofemoral and Patellofemoral Joint.

Ankle and Foot Complex: Introduction, Definitions of Motions, Ankle Joint-Ankle Joint Structure and Function; Subtalar Joint Structure and Function; Transverse Tarsal Joint Structure and Function; Tarsometatarsal Joint Structure and Function; Metatarsophalangeal Joint Structure and Function; Interphalangeal Joints- Plantar Arches- Structure and Function of the Arches, Muscular Contribution to the Arches, Muscles of the Ankle and Foot- Extrinsic Musculature, Intrinsic Musculature, Deviations from Normal Structure and Function.

Module 5: INTEGRATED FUNCTIONS OF POSTURE AND GAIT (12 Periods)

Posture: Introduction to Static and Dynamic Postures, Postural Control, Major Goals and Basic Elements of Control; Optimal Posture: Analysis of Standing Posture, Sitting Postures and Lying Postures; Effects of Age,Pregnancy,Occupation,and Recreation on Posture; Clinical kinesiology of posture**.**

Gait: Introduction to General Features of Gait; Phases of the Gait Cycle, Determinants of Gait; Kinematics and Kinetics of the Trunk and Upper Extremities in Gait. Stair and Running Gaits; Effects of Age,Gender,Assistive Devices, and Orthoses; Abnormal Gait- Structural Impairment, Functional Impairment;

Ergonomic Approach to lifting and handling, work space and Environment.

Total Periods: 60

EXPERIENTIAL LEARNING

List of Experiments

1. How to design for ease and Efficiency in Ergonomics.
2. Demonstrate the BiomechanicalApplicationstoJointStructureandFunction.
3. Analyze and evaluate the Axial Skeletal, Upper and Lower ExtremityJointComplexes.
4. Assess the Integrated Function of Posture and Gait.
5. Evaluate the activities of daily living ADL – like sitting to standing, throwing, lifting.
6. Trace out the DeterminantsofGait and Ergonomic Approach to lifting and handling.

RESOURCES:

BOOKS:

1. Pamela K. Levangie & Cynthia C, Joint Structure &Function, Jaypee Brothers Medical Publishers –Sixth edition, 2019
2. Jim Richards, Clinical Biomechanics- Elsevier,2nd edition, 2022.
3. Peggy A. Houglum, Dolores B. Bertoti,Brunnstrom'sClinical Kinesiology, F.A.DAVIS COLLECTION 6th ed./revised 2012.
4. Pavan Kumar G & Ilona Gracie De Souza, Textbook of Biomechanics & Kinesiology- Jaypee Brothers,1st Edition,2022.
5. Katrin Kroemer Elbert, Henrike B.Kroemer, Anne D. Kroemer Hoffman, Textbook of Ergonomics. ISBN, Third Edition, 2018.
6. Gavriel Salvendy Waldemar Karwowski, Handbook of Human Factors and Ergonomics, ISBN First Edition,2021

VIDEO LECTURES:

1. https://youtu.be/auogbJFitmI
2. https://youtu.be/8IZ_w6hhpQ
3. https://youtu.be/p2e5VBcGbcQ
4. https://youtu.be/UPg-3i4EnXc
5. https://youtu.be/TqJW2P7eehQ

WEB RESOURCES:

1. https://www.sciencedirect.com/journal/clinical-biomechanics
2. https://fadavispt.mhmedical.com/content.aspx?bookid=2148&sectionid=162869570
3. http://www.lavoisier.eu/books/medicine/clinical-kinesiology-andbiomechanics/description_4849221
4. https://journals.indexcopernicus.com/issues/21690/72183
5. https://www.letpub.com/index.php?journalid=1797&page=journalapp&view=detail
6. https://journals.physiology.org/journal/jn
7. https://www.frontiersin.org/articles/10.3389/fneur.2021.770791/full
8. https://www.mdpi.com/2077-0383/11/14/4184

PROGRAM CORE

Course Code	Course Title	L	T	P	S	C
22PT202004	**ADVANCED PHYSIOTHERAPEUTIC-I**	3	-	2	-	4

Pre-Requisite -

Anti-Requisite -

Co-Requisite -

COURSE DESCRIPTION: This course provides a detailed discussion about the knowledge of electrotherapy modalities, their configurations, Methods of application, Clinical decision making with the evidence based practice, and updating the recent advances in the field of Electrotherapy.

COURSE OUTCOMES: After successful completion of the course, students will be able to:

CO1. Apply superficial heat and cold modalities and its recent advances in Physiotherapy treatment.

CO2. Understand the low-frequency and medium-frequency currents, their physiological and therapeutic effects, and theories of pain.

CO3. Understand the High-frequency currents, their physiological and therapeutic effects, and recent advances in High-frequency currents.

CO4. Apply High-frequency currents with proper decision-making based on the evidence.

Course Outcomes	Program Outcomes								Program Specific Outcomes		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	-	-	-	-	2	-	1	3	-	-
CO2	3	2	1	-	-	2	-	1	3	-	-
CO3	3	1	-	-	-	2	-	1	3	-	-
CO4	3	3	2	-	-	2	-	1	3	-	-
Course Correlation Level	**3**	**2**	**2**	**-**	**-**	**2**	**-**	**1**	**3**	-	-

Correlation Levels: 3: High; 2: Medium; 1: Low

COURSE CONTENT

Module1: MOIST HEAT THERAPY SUPERFICIAL HEATING AND COLD MODALITIES. ***(10 Periods)***

Cryotherapy application effects and techniques, aquatic therapy whirlpool therapy, and clinical assessment and case study. Hydrotherapy – physical properties of water effects of hydrotherapy, uses, adverse effects, application techniques, and benefits clinical case study. Moist heat therapy– effects of heat, uses of heat, advanced application techniques, clinical case study.Fluido therapy-Fluid therapy is a high intensity, heat modality, and effects of the fluid therapy, paraffin bath therapy, positive effects on muscle strength, and functional status, contrast bath and Hot packs

Module2: MODALITIES OF LOW FREQUENCY CURRENT AND MEDIUM FREQUENCY CURRENT EVIDENCE BASED PRACTICE PAIN **(12 Periods)**

Inferential therapy- medium frequency and low frequency current, and recent advance treatment. Faraday current, Galvanic current Russian currents, Di dynamic currents , sinusoidal currents, Rheo- based type Current , Transcutaneous Electrical Nerve Stimulation (TENS), Electrical stimulation, Functional electrical simulations, neuromuscular electrical simulation, high voltage pulsed galvanic stimulation, micro-current therapy, Pain – Mechanism of Pain, types of pain , theories of pain, pain gate control theory, Behavior of pain, modulation of pain and Clinical case study and electro diagnostic test SD curve ,FG test,H-wave test.

Module3: MODALITIES OF HIGH FREQUENCY CURRENT ***(13 Periods)***

SWD: short wave Frequency and wavelength of SWD (pulsed and continuous). Micro Wave Diathermy, Wave length and frequency and advanced application methods MWD pulsed and continuous.Iontophoresis advance clinical application methods. IRR techniques and Methods of application, infra-red radiation wavelength & parameters. UVR ultraviolet radiation generators: Kromayer lamp, Fluorescent tube, continuous passive motion CPM.shockwavetherapy,combinationtherapy,magneto therapy, Muscle strengthening and prevention of atrophy, muscle spasm, pelvic floor dysfunction.

Module4: MODALITIES OF HIGH FREQUENCY CURRENT AND MECHANICAL MODALITES ***(10 Periods)***

Ultrasound: introduction, effects, clinical applications, adverse effects, application techniques clinical case studies, Treatment Dosage parameters: Continuous& Pulsed mode, Intensity, US Field. Extracorporeal short wave therapy, LASER: Define LASER, Introduction to electromagnetic radiation, and laser effects Types of LASERS. Principles of Production, Methods of application technique, clinical case study. Traction– effects of spinal traction, adverse effects, application techniques, clinical case study. Compression – effects of external compression adverse effects, application techniques clinical case study and electronic traction, Safety considerations in electrotherapy, central nervous system lesions, peripheral nervous system lesions, and obesity.

TOTAL : 45 Periods

EXPERIENTIAL LEARNING

List of Experiments

1. Demonstrate the techniques for patient evaluation, receiving the patient, position of the patient pain, and treatment for electrotherapy.
2. Study a case technique of treatment and clinical application of superficial heat and cold therapy modalities
3. Understand the methods of low frequency and medium frequency current modalities electrical stimulation and functional stimulation evidencebased pain electro diagnostic test
4. Evaluate the clinical application of various high frequency current, evidence based clinical application.
5. Trace out the various modalities in high-frequency current and mechanical agents
6. Assessment of clinical conditions and the techniques used for the treatment and diagnostic modalities in electro therapy

RESOURCES

BOOKS

1. Low and Reed, Electrotherapy Explained, Elsevier India 4th edition,2008
2. Forster and Palastanga Clayton's Electrotherapy, , Bailliere Tindall 8th edition,2005
3. Mitra ,Handbook of Practical Electrotherapy,JAYPEE BROTHERS,1st edition,2006
4. JAGMOHAN SINGH,Textbook of Electrotherapy, Jaypee Brothers Medical Publishers,3rd edition,2017
5. Virendra Kr. Khokhar,Electrotherapy For Physiotherapists , Top Publishing 4th edition,2015
6. S. KITCHEN, Electrotherapy – Evidenced based Practice, Scribd,11thedition,200
7. Cameron: Physical agents in Rehabilitation: An Evidence Based approach, Elsevier Health science- 2022.

VIDEO LECTURES:

1. https://youtu.be/a54Sks3apT4?si=kLXEuniozqIJxM-6
2. https://youtu.be/fhNV7uu1lec?si=0TP8dwE71gnhztIH
3. https://youtu.be/9VFt2VtpbQc?si=FivHlOgGhwkI7P0-
4. https://www.youtube.com/watch?v=w_uSsFeA_lc
5. https://www.youtube.com/watch?v=EjJ5nX_jM-w

WEB RESOURCES:

1. Jacopo martellucci electrical stimulations for pelvic floor disorders, jan 1st 2014 https://link.springer.com/chapter/10.1007/978-3-319-06947-0_4
2. Chueh-Hung Wu, in Braddom's Rehabilitation Care: A Clinical Handbook, 2018 https://www.sciencedirect.com/topics/medicine-and-dentistry/electrotherapy
3. Interferential Therapy INTERFERENTIAL THERAPY (IFT) INTRODUCTION The basic principle of Interferential Therapy (IFT) is to utilize the significant physiological effects of low frequency (<250pps) electrical stimulation of nerves without the associated painful and somewhat unpleasant side effects
4. Therapeutic Ultrasound – Physiopedia
5. Lambert I, Tebbs SE, Hill D, Moss HA, Davies AJ, Elliott TSJ (2000). Interferential therapy machines as possible vehicles for cross-infection. J Hosp Infect. 44(1), 59-64
6. Val Robertson, Alex Ward, John Low John Low Ann Reed, Electrotherapy Explained: Principles and Practice. 4th Edition. Butterworth-Heinemann,2006
7. Tim Watson, Electrotherapy: evidence-based practice. Physiotherapy essentials. 12th edition, Churchill Livingstone,2008
8. Saunders HD. Lumbar traction*. J Ortho Sports Phys Ther. 1979; 1(1): 36-45. (LEVEL 1A)
9. Pellecchia GL. Lumbar traction: a review of the literature. Journal of Orthopedic& Sports Physical Therapy. 1994 Nov;20(5):262-7. (LEVEL 1A)
10. He M.L., Xiao Z.M., Lei M., Li TS., Wu H., Liao J. Continuous passive motion for preventing venous thromboembolism after total knee arthroplasty. Cochrane Database Syst Rev. 2014 Jul 29;(7):CD008207.
11. Gil-González S., Barja-Rodríguez R., López-Pujol A., Berjaoui H., Fernández-Bengoa J., Erquicia J., Leal-Blanquet J., Pelfort X. Continuous passive motion not affect the knee motion and the surgical wound aspect after total knee arthroplasty. J Orthop Surg Res. 2022 Jan 15;17(1):25.
12. Painhealth Pain Types https://painhealth.csse.uwa.edu.au/pain-module/pain-types/ (last accessed 20.5.2020)

PROGRAM CORE

Course Code	Course Title	L	T	P	S	C
22PT202005	ADVANCED PHYSIOTHERAPEUTIC-II	2	-	2	-	3

Pre-Requisite -

Anti-Requisite -

Co-Requisite -

COURSE DESCRIPTION: This course gives an overview of numerous therapeutic exercises and approaches, as well as a brief outline of different manual therapy techniques to use in treating various medical problems based on evidence.

COURSE OUTCOMES: After successful completion of the course, students will be able to:

CO1. Demonstrate the different therapeutic exercises.

CO2. Schedule the exercises for Musculoskeletal Disorders.

CO3. Plan the exercises for Cardio-Pulmonary Disorders.

CO4. Understand the exercises in special medical conditions.

CO5. Demonstrate various manual therapy techniques.

CO-PO-PSO Mapping Table:

Course Outcomes	Program Outcomes								Program Specific Outcomes		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	2	3	1	-	1	-	1	3	-	3
CO2	3	2	3	-	-	1	-	2	3	-	3
CO3	3	2	3	-	-	1	-	2	-	-	3
CO4	3	2	3	-	-	1	-	2	-	-	3
CO5	3	1	3	1	-	1	-	2	3	-	3
Course Correlation Mapping	**3**	**2**	**3**	**1**	**-**	**1**	**-**	**2**	**2**	**-**	**3**

Correlation Levels: 3: High; 2: Medium; 1: Low

COURSE CONTENT

Module 1: General Concepts Of Therapeutic Exercises ***(05 Periods)***

Movements, Strength Training, Principles of Aerobic Exercises, Stretching, Hydrotherapy, Mobilizations and Proprioceptive Neuro Muscular Facilitation.

Module 2: Application Of Therapeutic Exercise in Musculoskeletal Disorders ***(05 Periods)***

Soft Tissue Injuries, Fractures, Post Surgical Conditions, and an outline of the conditions of the Shoulder Joint, Elbow Joint, Wrist Joint, Hip Joint, Knee Joint, Ankle Joint, and Spinal joint.

Module 3: Application Of Therapeutic Exercises in Cardio-Pulmonary Disorders ***(05 Periods)***

Vascular Disorders of Extremities – Arterial Disorders, Venous Disorders, Lymphatic Disorders and Exercises for the Management of Lymphoedema,Effects of exercise on cardiac function. Breathing Exercises and Ventilatory Training, Chest Mobilization Exercises, Coughing, Postural Drainage, and Management of Chronic Obstructive Pulmonary Disease and Restrictive Lung Disease,Cardiopulmonary medications and their effect on activity performance.

Module 4: Special Areas Of Therapeutic Exercises ***(05 Periods)***

Principles of Exercise For Obstetric Patients, Plastic Surgery, Psychiatric Conditions, Spasticity and Flaccidity, Peripheral Neural Mobilization,Theories of Motor Control and Motor Learning. Exercises to improve Bladder control, Kegels Exercise, Brandt-Daroff Exercises. Concepts of Bobath approach, Brunnstorms approach.

Module 5: Manual Therapy Techniques **(10 Periods)**

Concepts of Mc Kenzie technique, Mulligan technique, Muscle energy technique, Taping Technique, Positional release technique, Cyriax Friction Massage, and Feldenkrais method.

Total Periods: 30

EXPERIENTIAL LEARNING

List of Experiments:

1. Peripheral Joints, Chest wall, and Spinal Joint Mobilization.
2. Stretching Exercises.
3. Breathing Exercises.
4. Manual Therapy Techniques.
5. Progressive Resistance Exercises.
6. Passive Movements
7. Postural Drainage

RESOURCES

BOOKS:

1. Carolyn Kisner: Therapeutic Exercise Foundations and Techniques, F A Davis Co,3rd Edition, 2022.
2. Carrie M Hall: Therapeutic Exercise:Moving Towards Function; Lippincott Williams and Wilkins; 4th International Edition, 2017.
3. Robin Mc Kenzie:The Lumbar spine Mechanical Diagnosis And Therapy; Spinal Publications Newzealand,Ltd, 2nd Edition, 2003.
4. Leon Chaitow: Muscle Energy Techniques; Elsevier; 4th Edition, 2019.
5. Wayne Hing: The Mulligan concept of manual therapy. Churchill Livingstone; 1st Edition, 2014.
6. Rose Mac Donald: Taping Techniques- Principles and Practice; Butterworth-Heinemann, 2nd Edition,2004.
7. Chris Kresge: The Feldenkrais Method- Learning Through Movement; Handspring Publishing Ltd;1st Edition,2021.
8. John Sharkey: The concise book of Dry Needling: A Practitioners Guide to Myofascial Trigger Point; North Atlantic Books;1st Edition,2017.
9. Susan B O Sullivan: Physical Rehabilitation; F A Davis; 7th Edition,2019.
10. Michel Probst: Physiotherapy in Mental Health and Psychiatry: A scientific and Clinical based Approach; Elsevier;1st Edition,2017.

VIDEO LECTURES:

1. https://youtu.be/noThZxaeJwY
2. https://youtu.be/pI4T1OBWspI
3. https://youtu.be/YvuFdJsrPqQ
4. https://youtu.be/QHwBN91gmYk
5. https://youtu.be/qn2VT7Df7no
6. https://youtu.be/QOTR-J2LJ3k

WEB RESOURCES:

1. https://www.pdfdrive.com/
2. https://www.physio-pedia.com/
3. https://nzihf.ac.nz/personal-training/exercise-principles/
4. https://www.physio-pedia.com/Maitland%27s_Mobilisations
5. https://en.wikipedia.org/

PROGRAM CORE

Course Code	Course Title	L	T	P	S	C
22PT202006	PHYSIOTHERAPY DIAGNOSIS AND CLINICAL DECISION MAKING	3	-	2	-	4

Pre-Requisite -

Anti-Requisite -

Co-Requisite -

COURSE DESCRIPTION: This course provides a detailed discussion on the assessment, evaluation and decision of therapeutic approach towards the Clinical conditions.

COURSE OUTCOMES: After successful completion of the course, students will be able to:

CO1. Understand the basic findings, of radiology and imaging.

CO2. Analyse fitness components and on-field Training Physical assessment.

CO3. Knowledge of Neurological, Cardiopulmonary, and Musculoskeletal Assessment tools and Decision-making on improving the quality of life

CO4. Work independently and in teams to solve problems with effective communication.

CO-PO Mapping Table:

Course Outcomes	Program Outcomes								Program Specific Outcomes		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	3	3	-	-	2	-	1	-	3	-
CO2	3	3	3	-	-	2	-	1	-	3	-
CO3	3	3	3	-	-	2	-	1	-	3	-
CO4	3	3	3	-	-	2	-	1	-	3	-
Course Correlation Level	**3**	**3**	**3**	**-**	**-**	**2**	**-**	**1**	**-**	3	-

Correlation Levels: 3: High; 2: Medium; 1: Low

COURSE CONTENT

Module 1: GENERAL CLINICALEXAMINATION ***(08 Periods)***

Study of common diagnostic and therapeutic imaging tests, X-rays, MRI ultrasounds and other images helpful to the physiotherapy profession. 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. motor learning –motor control assessment, Assessment of pain and symptoms, sources of pain, types of pain.

Module 2: GENERALPHYSICAL FITNESS ASSESSMENT ***(07 Periods)***

Anthropometric measurements. Assessment by physical fitness, BMI calculation, Physical fitness

assessment by Range of motion, Muscle strength, Muscle power, endurance and skills, balance, agility, flexibility.Body composition, Fitness test for sports, cardiorespiratory fitness.

Module 3: NEUROLOGICAL CLINICAL ASSESSMENT AND SPECIAL TESTS *(10 Periods)*

Evaluation Methods, Neurological approaches, Neuromuscular taping evaluation, higher mental functions, reflexes, Neurological disorders.EMG and Biofeedback. Biophysical measurements, physiotherapy modalities, techniques and approaches. Motor control investigations and imaging techniques. Evaluation of aging. Geriatric cases and assessment- handling old patients, and their problems, physiology of aging, degenerative changes, Alzheimer, dementia, role of physiotherapy in hospital-based care.Neurological special tests and techniques, Glasgow coma scale , Modified Ashworth scale, Mini Mentalstatus examination, APGAR score, Timed up and go test, Berg Balance scale, Nive Hole peg test, Modified Barthel indies, ASIA scale,Trunk impairment Scale.

Module 4: CARDIO-PULMONARY CLINICAL ASSESSMENT AND SPECIAL TESTS *(10 Periods)*

Evaluation Methods, cardio-pulmonary clinical assessment, CPR. Exercise ECG testing, oxygen therapy, respiratory physiotherapy techniques, improve lung volumes, breathing techniques to clear secretions, cardiovascular changes during exercises, pulmonary circulation, ventilation-Perfusion ratio and monitoring, spirometer, Pulmonary function tests and lung volumes and capacities. Special tests and scales:Breathlessness scale a. Borg and modified Borg scale.b. Modified medical research council dyspnea scale, Edema grading,Clubbing grading, Pulse grading,Sputum grading, Chest pain scales,Glasgow coma scale,Activities of daily living- Barthal index, Pulmonary –specific outcome scale,Pulmonary functional status scale (PFSS)

Module 5: MUSCULOSKELETAL CLINICAL ASSESSMENT AND SPECIAL TESTS *(10 Periods)*

Evaluation Methods, Aids and appliances, external aids and adaptive self-help devices, adaptive functional devices to improve movement dysfunction,Physical disability evaluation and disability diagnosis. Evaluate the gait measuring, the limb length and body circumferences, analysis and diagnosis. Clinical decision making in electrotherapeutics. Special tests and Scales**:**Neck disability index scales,Temporo - mandibular disability index,Shoulder pain and disability index – SPADI,Oswestry disability index – ODI,WOMAC scale,Liver pool elbow score, Roland and Morris disability questionnaire,Lower extremity functional scale, Foot and ankle ability measure, DASH – Disabilities of arm shoulder, hand questionnaire

TOTAL: 45 Periods

EXPERIENTIAL LEARNING

LIST OF EXPERIMENTS:

1 Case-based discussion in physiotherapy diagnosis, CT, MRI, X-ray, and other medical images.

2 Health protection, assessment of health, and skill-related physical fitness.

3 Able to conduct patient assessment and scale as per neurological case examples and case studies and physiotherapy moralities, geriatrics handling old age patients in physiotherapy in hospitals.

4 Cardioclinical assessment case evaluation, ECG testing, spirometry, respiratory techniques, changes during exercises, and breathing techniques.

5 Myofascial techniques, musculoskeletal aids ,and appliances, functional devices, the gait measuring the limb length.

RESOURCES

BOOKS:

1. Gopal nambi s, A practical Guide on physiotherapy assessment for physiotherapy students" JP medical publishers, 1st edition (2017).
2. Dr A.K. Uppal , Scientific Principles of sports training, friends publications, (2017)
3. Thomas H. Berquist , Imaging of sports injuries. , Aspen publishers, 1st edition, 1992
4. SusanEdwards,Neurological physiotherapy-a problem solving approach, churchcilllivingstone, 2nd edition (2001)
5. MichaelJ.G.Harrison, Clinical skills in neurology, butterworthheinemann publisher, 2nd edition (1996)
6. JenniferA.Pryor, physiotherapy for respiratory and cardio problems- adults and paediatrics, Elsevier health publisher, 4nd edition, 2013
7. Donnafrownfelter Cardiovascular andPulmonary physical therapy- evidence to practice, Mosby publishers, 5th edition, 2012.

VIDEO LECTURES:

1. https://www.youtube.com/watch?v=1afP6eGflR8
2. https://www.youtube.com/watch?v=E44W54z_Ykw
3. https://www.youtube.com/watch?v=gaiCtdo6CLE
4. https://www.youtube.com/watch?v=fcN37TxBE_s
5. https://youtu.be/VcCAHbiEcZo?si=bUmruUh35i8cPiqt
6. https://www.youtube.com/live/WIUsBtj-q_s?si=A3dCSoZn6MWE-OX9

WEB RESOURCES:

1. Narayan, K Kar, S Gupta, N. From 'Paramedics' to 'Allied Health Professionals': Landscaping the Journey and Way Forward. Public Health Foundation of India: New Delhi, India, 2012.
2. Standards of practice for ACT Allied Health Professionals 2005. Available from: http://health.act.gov.au/c/health?a=dlpubpoldoc&document=863.
3. PhysioPedia

PROGRAM CORE

Course Code	Course Title	L	T	P	S	C
22PT201003	Sports for fitness, Prosthetics, and Orthotics	4	-	-	-	4

Pre-Requisite -

Anti-Requisite -

Co-Requisite -

COURSE DESCRIPTION: This course gives an overview of different exercises, Principles of training and Physiological changes in training the individuals for fitness. Essentials of Orthoses and Prosthesis in rehabilitation.

COURSE OUTCOMES: After successful completion of the course, students will be able to:

CO1. Apply the concepts of exercise physiology, Nutrition, and training for fitness.

CO2. Understand the adaptations to training and design relevant training plans.

CO3. Knowledge on optimization of the performance and effects of ergogenic aids on performance.

CO4. Analyse and apply the recent advances in orthosis and prosthesis management.

CO-PO-PSO Mapping Table:

Course Outcomes	Program Outcomes								Program Specific Outcomes		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	2	3	1	-	1	-	1	1	-	3
CO2	3	2	3	1	-	1	-	2	1	-	3
CO3	3	2	3	1	-	1	-	2	1	-	3
CO4	3	2	3	1	-	1	-	2	1	-	3
Course Correlation Mapping	**3**	**2**	**3**	**1**	**-**	**1**	**-**	**2**	**1**	**-**	**3**

Correlation Levels: 3: High; 2: Medium; 1: Low

COURSE CONTENT

Module 1: Fitness and Nutrition ***(15 Periods)***

Methods of Program evaluation- Field testing, Principles of Training- Specificity, overload, progression, individuality, adaptation, and reversibility. Importance of Nutrition macro and micronutrients in the training.

Module 2: Adaptations to training ***(15 Periods)***

Resistance training and gains in muscle fitness, Adaptations to aerobic and anaerobic training,

resistance training programs, anaerobic and aerobic power training program, muscle soreness and cramps, resistance training for special population.

Module 3: Optimizing performance ***(15 Periods)***

Optimizing training, overtraining, tapering for peak performance, detraining. Ergogenic aids and sport- pharmacological, hormonal, physiological, and nutritional agents

Module 4: Orthosis and Prosthesis ***(15 Periods)***

Introduction to prosthetics and orthotics- types, indications, and contraindications. Evaluation for deformities, Rationale for prescription of Prosthetics and orthotics, recent advances.

Total Periods: 60

EXPERIENTIAL LEARNING

1. Carbohydrate loading and performance.
2. Importance of Stretching Exercises in sports.
3. Reaction time in sports performance.
4. Recent literature on Micronutrients and performance.
5. Progressive Resistance Exercises.

RESOURCES

BOOKS:

1. Daniel D Arnheim: Arnheims principles of athletic training, McGraw-Hill higher education, 3rd Edition,2002.
2. Tudor O. Bompa: Periodization theory and methodology of training; Human kinetics; 6th Edition, 2018.
3. Wilmore: Physiology of sport & Exercise. Human Kinetics publishers; 8th Edition, 2021..

VIDEO LECTURES:

1. https://youtu.be/srevC5ICT_s
2. https://youtu.be/317W2zrQh-M
3. https://youtu.be/2CxEhg50oCI
4. https://youtu.be/fIGX9yyPRiE
5. https://youtu.be/x8H3SRq1L8w
6. https://youtu.be/Ywny2RH1NdQ

WEB RESOURCES:

1. https://www.pdfdrive.com/
2. https://www.physio-pedia.com/
3. https://nzihf.ac.nz/personal-training/exercise-principles/
4. https://www.physio-pedia.com/Maitland%27s_Mobilisations
5. https://en.wikipedia.org/

PROGRAM ELECTIVE

Course Code	Course Title	L	T	P	S	C
22PT202010	BASIC SCIENCE - SPORTS MEDICINE	4	-	2	-	5

Pre-Requisite 22PT202003 Clinical Biomechanics and Kinesiology

Anti-Requisite

Co-Requisite

COURSE DESCRIPTION:

This course provides a detailed discussion on anatomy, Pathophysiology, Pathomechanics needed for evaluation of specific sports injuries.

COURSE OUTCOMES: After successful completion of the course, students will be able to:

CO1 Understanding the detailed anatomical structure and formation of all the joints and Neurobiology of joint.

CO2 Analyze and evaluate the Physiology of joint and muscles and demonstration of Dermatomes and myotomes

CO3 Understanding the biomechanics in different sport events and demonstration and Flexibility exercises

CO4 Apply Rules and regulations of sports and understand the Pathomechanics of sport injuries

CO-PO Mapping Table:

Course Outcomes	Program Outcomes								Program Specific Outcomes		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	3	-	-	-	3	-	1	-	-	-
CO2	3	2	-	-	-	3	-	-	-	-	-
CO3	3	3	2	-	-	3	-	2	3	-	-
CO4	3	3	2	-	-	3	-	-	3	3	2
Course Correlation Level	**3**	**3**	**2**	**-**	**-**	**3**	**-**	**2**	**3**	**3**	**2**

Correlation Levels: 3: High; 2: Medium; 1: Low

COURSECONTENT

Module1: ANATOMY ***(15 Periods)***

Embryological development of musculoskeletal system, OSTEOLOGY: Structure of bone ossification of bones, Skull Bones, Facial bones, Bones of Upper Extremity, Lower Extremity, Pelvis, Vertebral Column, ribs, MYOLOGY: Structure of muscle, types of muscle, muscle fibers, Origin, Insertion, Action, Nerve Supply Muscles of Face, Upper Extremity , Lower Extremity, Trunk, ARTHROLOGY: Structure of joint, types of joints, detailed structure and formation of all the joints. Neurobiology of joint.

Module2: PHYSIOLOGY ***(15 Periods)***

Joint Physiology (Movements), muscle Physiology: Classification of Muscles, Structure of Skeletal Muscle, Properties of Skeletal Muscle, Changes during Muscular Contraction, Neuromuscular Junction, Smooth Muscle, Electromyogram and Disorders of Skeletal Muscle, Endurance of Muscle. NEUROLOGY: Peripheral nerves, Dermatomes and myotomes, Physiology of pain, Physiology of sleep, high altitude, space and deep sea physiology.

Module3: PATHOMECHANICS ***(15 Periods)***

Pathomechanics of sport injuries, Pathomechanics of Fractures, Deformed joints, Types of Injuries, Reaction to injury, Response of joint structures to injury, Flexibility exercises- Neurophysiology, Kinesiology of the upper extremity, Structure and Function of the Bones and Joints, Kinesiology of the upper extremity: Mechanics and Pathomechanics of Muscle Activity at shoulder complex, elbow and hand and wrist unit. Kinesiology of the lower extremity: Mechanics and Pathomechanics of Muscle Activity at hip, knee, ankle and foot unit.

Module4: INTRODUCTION TO SPORTS ***(15 Periods)***

Physiological effects of stretching & mobilizations prior to the participation in sports, Types of exercises and their physiological effects related to sports. Use & application of biomechanics in different sport events (like throwing mechanics, running mechanics, swimming mechanics…, Aquatic- Physical Properties of water, Physiologic effects of water immersion and its therapeutic value. Psychological factors of sports injuries, Physiological factors of sports injuries, Rules and regulations of sports, Doping and sports- List of banned drugs , Various methods of dope testing , Education of sport person on doping and its effects ,Sports Specific injuries, Physical demand in different sports, Effects of immobilization, Inflammatory and healing Process, Micro trauma, stress reactions,

Total Periods: 60

EXPERIENTIAL LEARNING

1. Clinical application of Dermatomes and myotomes
2. Analyze and evaluate the biomechanics in different sport events
3. Assess the Pathomechanics of sport injuries
4. Analyze and evaluate Sports Specific injuries
5. Demonstration of Flexibility exercises

RESOURCES

TEXTBOOKS:

1. A. KAPANDJI, The physiology of joints,(3 volumes) 6th edition, 2007. Elsevier Limited publications.
2. K Sembulingam and Prema Sembulingam, Essentials of Medical Physiology, Jaypee Brothers Medical Publishers , 6th edition, 2012
3. Joanne M. Koury Aquatic Therapy Programming: Guidelines for Orthopedic Rehabilitation, Human kinetics publications, 1st edition, 1996
4. B D Chaurasia's, human anatomy , CBS publishers and distributors pvt ltd ,9th edition,2022
5. James G. Hay, Biomechanics of Sports Techniques, Prentice Hall publications, 3rd edition, 1986

VIDEOLECTURES:

1. https://www.youtube.com/watch?v=818TcJJLshg&pp=ygUmYmlvbWVjaGFuaWNzIGluIGRpZmZlcmVudCBzcG9ydCBldmVudHM%3D
2. https://www.youtube.com/watch?v=JIhCukkphWM&pp=ygUTU3RydWN0dXJlIG9mIG11c2NsZQ%3D%3D
3. https://www.youtube.com/watch?v=Y23zpVGXqYU&pp=ygUKYXJ0aHJvbG9neQ%3D%3D

WEB RESOURCES:

1. https://www.allthescience.org/what-is-myology.htm
2. https://www.britannica.com/science/joint-skeleton
3. https://link.springer.com/chapter/10.1007/978-0-85729-402-9_4
4. https://www.physio-pedia.com/Aquatherapy
5. https://www.britannica.com/science/neuromuscular-junction

PROGRAM ELECTIVE

Course Code	Course Title	L	T	P	S	C
22PT201006	**CLINICAL SPORTS MEDICINE**	5	-	-	-	5

Pre-Requisite -

Anti-Requisite -

Co-Requisite -

COURSE DESCRIPTION: This course provides a detailed discussion on common causes, mechanism, Pathophysiology, signs, symptoms, medical and surgical treatments of following sports related injuries and also should know the recent advances in the surgical, medical management of sports related injuries.

COURSE OUTCOMES: After successful completion of the course, students will be able to:

CO1 Understand numerous shoulder and epiphyseal injuries and the latest Procedures in the management of Trauma.

CO2 Knowledge of general elbow and wrist disorders and advances in the Medical and Surgical Management

CO3 Analyse the clinical conditions of lower extremity and learn about their recent advances

CO4 Analyze regional spinal disorders and advances in the Medical and Surgical Management.

CO-PO Mapping Table:

Course Outcomes	Program Outcomes								Program Specific Outcomes		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	3	-	-	-	3	-	-	-	2	-
CO2	3	3	-	-	-	3	-	-	-	2	-
CO3	3	3	-	-	-	3	-	-	-	2	-
CO4	3	3	-	-	-	3	-	-	-	2	-
Course Correlation Level	**3**	**3**	**-**	**-**	**-**	**3**	**-**	**-**	**-**	2	-

Correlation Levels: 3: High; 2: Medium; 1: Low

COURSECONTENT

MODULE-1 EPIPHYSEAL AND SHOULDER GIRDLE INJURIES: ***(15 Periods)***

Classification, Complications and prognosis of Epiphyseal injuries, Osgood Schlatter disease, Traction epiphysis's, tendonitis at the insertion of Patellar tendon, complete avulsion of the epiphysis of the tibial tubercle shoulder - contributing risk factors - intrinsic factors, extrinsic factors. **shoulder girdle injuries**: Injuries to the sternoclavicular joint - Sprains, dislocations, Scapulothoracic Joint lesions, Acromioclavicular joint sprains, anterior dislocation of the, glenohumeral joint, recurrent, anterior dislocation of the shoulder, posterior dislocation of shoulder, Thoracic outlet syndrome, Painful arc, Rotator cuff injuries, Impingement syndromes, Glenoid Labrum Lesions

MODULE-2 ELBOW,WRIST, HAND UNIT INJURIES ***(20 Periods)***

Olecranon Bursitis, Valgus extension overload, elbow, Ulnar Nerve Lesions, Ulnar & Radial Collateral ligament sprains, Contusions and Strains, Dislocations, Osteochondrities dissicans, Little leagures Elbow, Problems resulting from throwing - medial lesions, lateral lesions, posterior lesions, Elbow injuries for Tennis: Epicondylities, Incidence, Pathology, Mechanism of injury . Colle's fracture, Scaphoid fracture, Gamekeeper's Thumb, DIP Joint Fracture & Dislocation, Jersey Finger, Boutonniere Deformity, Pseudo Boutonniere Deformity, Fractures of the metacarpals, Bennett's fracture mallet finger, Dequervain's tenosynovitis of the thumb, Bowler's thumb handler palsy, Hamate fracture Ganglion cysts, Trigger finger, Carpal Tunnel Syndrome.Contusion to the quadriceps, strain of the quadriceps musculature, acute strain of the hamstring group, complete rupture of the Patellar tendon.

MODULE-3 INJURIES TO THE LOWER EXTREMITY ***(20 Periods)***

Knee Injuries: Knee ligament injuries first- degree sprain, Second degree sprain, third degree sprain, Anterior and Posterior Cruciate Tears, anteriolateral instability meniscal lesion, Articular Cartilage lesions, Patello femoral dysfunction. **Injuries of the Patella**: Patella fracture -acute dislocation, recurrent dislocation, subluxation and spontaneous reduction of a dislocated patella, Osteochondrities dissecans, Jumper's Knee. Tibiofibular synostosis, Rupture of the gastrocnemius, tennis leg, total rupture of the Achilles tendon, Partial rupture of the achillies tendon, Tendinopathies - Achilles Tendonitis, Anterior tibialis tendonitis, Peroneal tendonitis, Posterior tibialis tendonitis, Flexor Hallucis Longus Tendonitis, Flexor digitorum longus Tendonitis, Compartmenta Compression syndromes, Heel bruises, Os trigonum injury, Calcaneal apophysitis, Tarsometatarsal injuries, Tarsal Tunnel syndrome, Cuboids Syndrome, Metatarsal Stress fracture, Interdigital neuroma, Stairclimbers transient parasthesia, Turf Toe, Sesmoitidis. Injuries to Ankle: Syndesmotic Ankle Sprain, inversion sprains, Eversion sprains, Dorsiflexion Sprains, tarsal tunnel syndrome, stress fracture of the metatarsal, Vorton's neuromas, corns and calluses, blisters, ingrown toenails, peroneal tendon subluxation.

MODULE-4 INJURIES TO THE LOWER BACK ***(20 Periods)***

Postural syndrome, Dysfunction Syndrome, Derangement Syndrome, Spondylolysthesis, Injuries to the Running Athlete: Causes of overuse injuries. Common running induced injuries to the lower back common running induced injuries to the hip-illiotibial tract pain, trochanteric bursitis, stress fracture of femoral neck, slipped capital femoral epiphysis, vague hip pain. Common Running Related Injuries to the Knee: Medial Patellar Pains, Pes Anserine Bursitis, Patellar tendonitis, retropatellar pain, Lateral Patellar pain, lateral knee pain, biceps femoral tendonitis. Common Running Related Injuries to the Lower leg: Tibial Stress relation, Stress fracture, medial tibial stress syndrome, compartment syndrome Anterior,Posterior, Lateral, Fibular Stress reaction and stress fracture, retrocalcaneal bursitis medial arch pain, plantar fasciitis. Swimming Injuries: Swimmers Shoulder" anterior subluxation of the Glenohumeral joint, Breaststroker's injury

Total Periods: 75

EXPERIENTIAL LEARNING

1. Demonstrate the clinical symptoms of various joints
2. evaluate the injuries of shoulder and epiphyseal joints
3. clinical conditions of sport specific injuries
4. clinical conditions of knee and patellar injuries
5. Demonstration of various swimming injuries.

RESOURCES

TEXTBOOKS:

1. Peter Brukner and Karim Khan, Clinical Sports Medicine, McGraw-Hill Education / Australia publications, 5th edition, 2017.
2. Christopher M Norris , Sports Injuries: Diagnosis and Management, 3rd Edition, Butterworth- Heinemann Publications, 2004
3. Kinesiology of the Human Body under normal and pathological conditions Arthur Steindler.
4. David Warwick and Solomon: Apleys and Solomons system of orthopaedics and trauma, CRC Press, 10th Edition, 2017.
5. Orthopedics – A Post Graduate Manual, Dr.(col)S.K.Biswas, Jaypee Publication,New Delhi 1st edition, 2012.

VIDEOLECTURES:

1. https://www.youtube.com/watch?v=j55Srv9rjLs
2. https://www.youtube.com/watch?v=Ho-nWmsbtVs
3. https://www.youtube.com/watch?v=9qwLNCQm6bg
4. https://www.youtube.com/watch?v=nwd1h0Dfo5o
5. https://www.youtube.com/watch?v=1UiriOq1Xzs

Web Resources:

1. https://orthoinfo.aaos.org/en/diseases--conditions/common-shoulder-injuries
2. https://my.clevelandclinic.org/health/diseases/22093-sports-injuries
3. https://health.usnews.com/wellness/articles/jumpers-knee
4. https://orthoinfo.aaos.org/en/diseases--conditions/common-knee-injuries
5. https://www.webmd.com/fitness-exercise/ankle-injuries-causes-and-treatments

PROGRAM ELECTIVE

Course Code	Course Title	L	T	P	S	C
22PT202011	EVALUATION OF SPORTS INJURIES	4	-	2	-	5

Pre-Requisite -

Anti-Requisite -

Co-Requisite -

COURSE DESCRIPTION:

This course provides a detailed discussion on common causes, mechanism, Pathophysiology, signs, symptoms, medical and surgical treatments of following sports related injuries and also should know the recent advances in the surgical, medical management of sports related injuries.

COURSE OUTCOMES: After successful completion of the course, students will be able to:

CO1 Understanding the Pre event preparation and evaluation of the athletes.

CO2 Demonstrate the importance of assessment in various injuries

CO3 Knowledge on functional scales and special tests in evaluation of an athlete

CO4 Apply various evaluation procedure for Differential diagnosis.

CO-PO Mapping Table:

Course Outcomes	Program Outcomes								Program Specific Outcomes		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO 1	PSO 2	PSO3
CO1	3	3	3	2	-	3	-	-	-	3	-
CO2	3	3	3	2	-	3	-	-	-	3	-
CO3	3	3	3	2	-	3	-	-	-	3	-
CO4	3	3	3	2	-	3	-	-	-	3	-
Course Correlation Level	**3**	**3**	**3**	**2**	**-**	**3**	**-**	**-**	**-**	**3**	-

Correlation Levels: 3: High; 2: Medium; 1: Low

COURSECONTENT

MODULE- I SPORTS ASSESSMENT ***(15 Periods)***

Emergency Sports Assessment, Pre -event preparation, Primary Assessment: Levels of Consciousness, Establishing the airway, Assessment of Bleeding, Fluid loss and shock, Pupil Check, Assessment for Spinal Cord Injury, Assessment for Head Injury, Assessment for Movement, Positioning the patient. Injury Severity, Secondary Assessment.
Preparticipation Evaluation: Objectives of the Evaluation, Setting up the Examination: Eye Examination, Musculoskeletal Examination, Neurological Examination and Preparticipation History, Convulsive Disorders, Cardiovascular Examination, Pulmonary Examination, Urogenital Examination, Gastrointestinal Examination, Dermatological Examination, Examination for Heart Disorders, General Medical Problems, Dental Examination, Application of isokinetics in testing techniques used in the sport evaluation

MODULE-II ASSESSMENT & EVALUATION OF THE UPPERLIMB ***(15 Periods)***

Epiphyseal: Classification, Complications and prognosis of Epiphyseal injuries, Osgood Schlatter disease, Traction epiphysis's, tendonitis at the insertion of Patellar tendon, complete avulsion of the epiphysis of the tibial tubercle shoulder - contributing risk factors - intrinsic factors, extrinsic factors. **shoulder** : Injuries to the sternoclavicular joint - Sprains, dislocations, Scapulothoracic Joint lesions, Acromioclavicular joint sprains, anterior dislocation of the, glenohumeral joint, recurrent, anterior dislocation of the shoulder, posterior dislocation of shoulder, Thoracic outlet syndrome, Painful arc, Rotator cuff injuries, Impingement syndromes, Glenoid Labrum Lesions. **Elbow**: Olecranon Bursitis, Valgus extension overload, elbow, Ulnar Nerve Lesions, Ulnar & Radial Collateral ligament sprains, Contusions and Strains, Dislocations, Osteochondrities dissicans, Little leagures Elbow, Problems resulting from throwing - medial lesions, lateral lesions, posterior lesions, Elbow injuries for Tennis: Epicondylities, Incidence, Pathology, Mechanism of injury. **Wrist and Hand**:Colle's fracture, Scaphoid fracture, Gamekeeper's Thumb, DIP Joint Fracture & Dislocation, Jersey Finger, Boutonniere Deformity, Pseudo Boutonniere Deformity, Fractures of the metacarpals, Bennett's fracture mallet finger, Dequervain's tenosynovitis of the thumb, Bowler's thumb handler palsy, Hamate fracture Ganglion cysts, Trigger finger, Carpal Tunnel Syndrome.

MODULE-III ASSESMENT & EVALUATION OF THE LOWERLIMB ***(15 Periods)***

Contusion to the quadriceps, strain of the quadriceps musculature, acute strain of the hamstring group, complete rupture of the Patellar tendon. **Knee Injuries:** Knee ligament injuries first- degree sprain, Second degree sprain, third degree sprain, Anterior and Posterior Cruciate Tears, anteriolateral instability meniscal lesion, Articular Cartilage lesions, Patello femoral dysfunction. **Injuries of the Patella:** Patella fracture -acute dislocation, recurrent dislocation, subluxation and spontaneous reduction of a dislocated patella, Osteochondrities dissecans, Jumper's Knee.Tibiofibular synostosis, Rupture of the gastrocnemius, tennis leg, total rupture of the Achilles tendon, Partial rupture of the achillies tendon, Tendinopathies - Achilles Tendonitis, Anterior tibialis tendonitis, Peroneal tendonitis, Posterior tibialis tendonitis, Flexor Hallucis Longus Tendonitis, Flexor digitorum longus Tendonitis

MODULE-IV ASSESSMENT & EVALUATION OF THE ANKLE,FOOT AND LOWER BACK ***(15 Periods)***

Compartmenta Compression syndromes, Heel bruises, Os trigonum injury, Calcaneal apophysitis, Tarsometatarsal injuries, Tarsal Tunnel syndrome, Cuboids Syndrome, Metatarsal Stress fracture, Interdigital neuroma, Stairclimbers transient parasthesia, Turf Toe, Sesmoitidis. Injuries to Ankle: Syndesmotic Ankle Sprain, inversion sprains, Eversion sprains, Dorsiflexion Sprains, tarsal tunnel syndrome, stress fracture of the metatarsal, Vorton's neuromas, corns and calluses, blisters, ingrown toenails, peroneal tendon subluxation. **Injuries to the Low Back:** Postural syndrome, Dysfunction Syndrome, Derangement Syndrome, Spondylolysthesis, **Injuries to the Running Athlete**: Causes of overuse injuries. Common running induced injuries to the lower back common running induced injuries to the hip-illiotibial tract pain, trochanteric bursitis, stress fracture of femoral neck, slipped capital femoral epiphysis, vague hip pain. Common Running Related Injuries to the Knee: Medial

Patellar Pains, Pes Anserine Bursitis, Patellar tendonitis, retropatellar pain, Lateral Patellar pain, lateral knee pain, biceps femoral tendonitis. Common Running Related Injuries to the Lower leg: Tibial Stress relation, Stress fracture, medial tibial stress syndrome, compartment syndrome Anterior, Posterior, Lateral, Fibular Stress reaction and stress fracture, retrocalcaneal bursitis medial arch pain, plantar fasciitis. **Swimming Injuries:** Swimmers Shoulder" anterior subluxation of the Glenohumeral joint, Breaststroker's injury.

Total Periods: 60

EXPERIENTIAL LEARNING

1. Analysing Emergency Sports injury
2. Application of isokinetic in testing techniques used in the sport evaluation
3. Demonstration of the Objectives of the Evaluation
4. Assessment of swimming injuries.
5. Assessment of Athletic injuries of upper limb, lower limb, and back.

RESOURCES

TEXTBOOKS:

1. Peter Brukner and Karim Khan, Clinical Sports Medicine, McGraw-Hill Education / Australia publications, 5th edition, 2017.
2. Christopher M Norris , Sports Injuries: Diagnosis and Management, 3rd Edition, Butterworth- Heinemann Publications, 2004
3. Kinesiology of the Human Body under normal and pathological conditions Arthur Steindler, 5th edition, Jaypee Publication,New Delhi, 2010
4. David C. Reid, Sports Injury Assessment and Rehabilitation, Churchill Livingstone publications, 1st edition, 1992
5. Kisner C. & Colby, Therapeutic Exercise: Foundations and Techniques, F.A. Davis Company publications 5thedition, 2002.
6. Orthopedics – A Post Graduate Manual, Dr.(col)S.K.Biswas, Jaypee Publication,New Delhi 1st edition, 2012.

VIDEOLECTURES:

1. https://www.youtube.com/watch?v=WDyV9ktI5No
2. https://www.youtube.com/watch?v=ghu6SqEjzyw
3. https://www.youtube.com/watch?v=F4awniU82-U
4. https://www.youtube.com/watch?v=xIZeNJsdw98
5. https://www.youtube.com/watch?v=gGoZf9w3t6A

Web Resources:

1. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4064851/
2. https://www.physiotherapyjournal.com/article/S0031-9406(05)60616-5/fulltext
3. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8486411/
4. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8684795/
5. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4935066/

PROGRAM ELECTIVE

Course Code	Course Title	L	T	P	S	C
22PT202012	**PHYSIOTHERAPY IN SPORTS MEDICINE**	4	-	2	-	5

Pre-Requisite -

Anti-Requisite -

Co-Requisite -

COURSE DESCRIPTION:

This course provides a detailed discussion on Physiotherapy treatments of the sports related injuries and the recent advances in the Sports rehabilitation.

COURSE OUTCOMES: After successful completion of the course, students will be able to:

CO1 Understand the prevention of Sports injury.

CO2 Understand rationale for use of Kinesio taping and sports technique as a clinical adjunct in practice.

CO3 Knowledge in training, nutrition, and psychology of different Sports.

CO4 Understand the Physiotherapy management of sports injury.

CO-PO Mapping Table:

Course Outcomes	Program Outcomes								Program Specific Outcomes		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO 1	PSO 2	PSO 3
CO1	3	3	3	2	-	3	-	-	3	3	3
CO2	3	3	3	2	-	3	-	-	3	3	3
CO3	3	3	3	2	-	3	-	-	3	3	3
CO4	3	3	3	2	-	3	-	-	3	3	3
Course Correlation Level	**3**	**3**	**3**	**2**	**-**	**3**	**-**	**-**	**3**	3	3

Correlation Levels: 3: High; 2: Medium; 1: Low

COURSECONTENT

MODULE- I Athlete Injury Prevention (**15 *Periods)***

prevention of Athletic Injuries, Athletic Coordinating Program - Skeletal Muscle Type 1 and Type 2 fibers, General conditioning principles- Strength, power, muscular endurance, flexibility, anaerobic metabolism. Warm-up Period: Warm-up schedule, stretching partner stretching using the proprioceptive neuromuscular facilitation technique. Protective and supportive equipment: Protective equipment, supportive devices, motion limiting devices. Treatment of athletic injuries, Taping and wrapping techniques. Emergency care and Athletic First Aid: Cardiopulmonary Emergencies, ABC of resuscitation, Haimlick maneuver shock injuries, internal injuries, Head and neck injuries, Fractures, Dislocations.

MODULE- II SPORTS TECHNIQUES (**15 *Periods)***

Introduction to K-taping method ,The Four Application Techniques, Muscle Applications of Upper and Lower Extremity, Spine , Muscle Applications of Upper and Lower Extremity, Spine , Therapeutic Applications in specific conditions,**Athletic Training-** Principles of Training Methodology, Overtraining and Recovery Techniques , Periodization - Principles and guidelines, Developing the Yearly Plan , Methods of Programme Evaluation - Field Testing Program Design- Resistance training, endurance training , plyometric, cross fit ,Fitness training related to specific sports, circuit training, sport - specific skills. Application of isokinetics in athletic rehabilitation.

MODULE- III NUTRITION AND PSYCHOLOGY OF ATHLETE (**15 *Periods)***

Energy-Yielding Nutrients,Physiological Aspects of Energy Metabolism, Fluid and fuel intake during competition and training, Body Weight Regulation and Energy Needs ,Dietary supplements and ergogenic aids, Sport-specific strategies to enhance performance: endurance and endurance trained sports, intermittent sports, strength and power sport, weight, restricted and weight conscious sports. Sports Psychology: Introduction, Psychological aspects of Sports, Goal Setting , Group Cohesion, Psychological aspects of sports injuries.

MODULE- IV PT MANAGEMENT (**15 *Periods)***

Physiotherapeutic management, Fitness training related to specific sports. rehabilitation & sports specific training for injuries in: Shoulder girdle, Elbow joint, Wrist & hand, Thigh, Knee, Patella, Ankle & foot, Cervical spine & skull, Thoracic spine & thoracic cage, Lumbosacral region, Swimming, Athletic, Abdominal.Injury First Aid: ICE or cold application, compression, Elevation, Gait Instruction, Stretcher and Wheelchair uses. Physiotherapeutic interventions for relief of pain. Sports massage, Trigger point release, neural tissue mobilization, Core Stability assessment & Training, Pilates, Swiss Ball training. Exercise testing, prescription & rehabilitation of older adults and geriatrics. Sports during pregnancy.Sports for youth with disabilities(Para olympics) Dynamic nature of personality, types of personality, role of sports in development of personality

Total Periods: 60

EXPERIENTIAL LEARNING

1. Pre event preparation and Preparticipation Evaluation
2. Goals of rehabilitation
3. Circuit training in Sports
4. Fitness training related to specific sports.
5. Nutrition and Athlete

RESOURCES

TEXTBOOKS:

1. Peter Brukner and Karim Khan, Clinical Sports Medicine, McGraw-Hill Education / Australia publications, 5th edition, 2017.
2. Weinberg RS, Gould D. Foundations of Sport and Exercise Psychology, 7E. Human Kinetics; 2018 Nov 16.- 3 rd edition
3. David C. Reid, Sports Injury Assessment and Rehabilitation, Churchill Livingstone publications, 1st edition, 1992
4. Pfeiffer RP, Mangus BC, Trowbridge C. Concepts of athletic training. Jones & Bartlett Publishers; 2014 Mar 19.- 2 nd edition
5. Kumbrink, B. (2014). K-taping: an illustrated guide-basics-techniques-indications. Springer.- 2 nd edition
6. Andersen MB. Doing sport psychology. Human Kinetics; 2000.- 2 nd edition
7. Bompa TO, Buzzichelli C. Periodization-: theory and methodology of training. Human kinetics; 2018 Jan 5.- 3 rd edition
8. Nutrition for Athletics- A Practical Guide to Eating And Drinking For Health And Performance In Track And Field. IAAF Athletics.2018.- 2 nd edition 2008

VIDEO LECTURES:

1. https://youtu.be/a54Sks3apT4?si=kLXEuniozqIJxM-6
2. https://youtu.be/fhNV7uu1lec?si=0TP8dwE71gnhztIH
3. https://youtu.be/9VFt2VtpbQc?si=FivHlOgGhwkI7P0-
4. https://www.youtube.com/watch?v=w_uSsFeA_lc
5. https://www.youtube.com/watch?v=EjJ5nX_jM-w

WEB RESOURCES:

1. https://www.slideshare.net/SushmitaKushwaha/physical-therapies-in-management-of-sports-injuries
2. https://www.physio-pedia.com/Rehabilitation_in_Sport
3. https://cbphysiotherapy.in/blog/on-field-sports-injury-management-immediate-physiotherapy-and-rehab-strategies
4. https://www.physio-pedia.com/The_Role_of_the_Sports_Physiotherapist
5. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8039355/

PROGRAM ELECTIVE

Course Code	Course Title	L	T	P	S	C
22PT202009	ORTHOPAEDIC PHYSIOTHERAPY INTERVENTION	4	-	2	-	5

Pre-Requisite -

Anti-Requisite -

Co-Requisite -

COURSE DESCRIPTION This course aims to learn and apply the Physiotherapy Management in fractures & Dislocation, soft tissue injuries and other common acute and chronic Musculoskeletal disorders.

COURSE OUTCOMES: After successful completion of the course, students will be able to:

CO1. Understand the Physiotherapy management of Fracture and Dislocation.

CO2. Knowledge and apply the Rehabilitation protocols for various soft tissue and sports injuries.

CO3. Demonstrate Physiotherapy management in bone and Joint disorders.

CO4. Apply Physiotherapy management of various spinal injuries

CO5. Demonstrate the importance of prosthesis and orthosis application in specific Musculoskeletal disorders.

CO-PO-PSO Mapping Table:

Course Outcomes	Program Outcomes								Program Specific Outcomes		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	2	2	1	-	1	-	2	2	2	3
CO2	3	2	3	-	-	1	-	2	2	2	3
CO3	3	2	3	-	-	1	-	2	2	2	3
CO4	3	2	3	-	-	1	-	2	2	2	3
CO5	3	1	3	1	-	1	-	2	2	2	3
Course Correlation Mapping	**3**	**2**	**3**	**1**	**-**	**1**	**-**	**2**	**2**	**2**	**3**

Correlation Levels: ***3: High;*** ***2: Medium;*** ***1: Low***

COURSE CONTENT

Module 1: FRACTURE REHABILITATION ***(10 Periods)***

Physiotherapy Intervention- Fractures and Dislocations – Upper limb, Lower limb, Spine, Skull bones and Ribs.

Module 2: SOFT TISSUE AND SPORTS INJURIES ***(15 Periods)***

General Classification and Management, Ligamentous injuries, Muscles and Tendon injuries and surgically repaired soft tissue, Torticollis, Supraspinatus Syndromes, Rupture of rotator cuff, Deltoid & Quadriceps fibrosis, Tennis elbow, Ganglion, Dequervain's disease, Trigger finger, Trigger thumb, Dupuytren's contracture. Bursitis around the knee, Loose bodies in the knee, Chondromalacia patella, plantar fasciitis, Calcaneal spur, Osgood Schlatter disease,

Module 3: BONE AND JOINT DISORDERS ***(15 Periods)***

Tumors of bones and joints, Congenital disorders, Developmental disorders bones, Bony Abnormalities secondary to endocrine disorders, Avascular necrosis of bone and epiphyseal osteochondritis, Disorders of bone & joint secondary to neurological conditions- Cerebral palsy, anterior poliomyelitis, Leprosy. Spinal cord injuries. Disorders of bone & joint secondary to Muscular Dystrophies, Arthrogryposis Multiplex Congenita, Fibro dysplasia progressive. Rheumatoid arthritis, Osteoarthritis.

Module 4: SPINAL INJURIES ***(10 Periods)***

Low back ache, Lumbo sacral strain, Fibrositis Back, Sacralistion of 5th lumbar vertebra, IVDP, Ankylosing Spondylitis, Lumbar canal stenosis, Spondylosis, Spondylolisthesis, Brachial neuralgia, Cervical rib, Thoracic outlet syndrome, Scoliosis, Sciatica, Pyriformis syndrome, Peripheral nerve injuries- Carpal tunnel syndrome, Tarsal tunnel syndrome.

Module 5: Prosthesis and Orthosis ***(10 Periods)***

Burns, Reflex Sympathetic dystrophy, Amputation, Prosthesis & Orthosis, Manual Therapy techniques.

Total Periods: 60

EXPERIENTIAL LEARNING

1. Anatomy and Physiology of Movements.
2. Upper limb and Lower limb Muscles Origin, Insertion, Action, and Nerve supply.
3. Muscles of Trunk – Origin, Insertion, Action, and Nerve Supply.
4. Peripheral Nervous System.
5. Analysis of Posture and Gait.

RESOURCES

BOOKS:

1. S Brent Brotzman: Clinical orthopaedic rehabilitation: A team approach, Elsevier, 4th Edition, 2017.
2. Michael suk: Hoppenfelds treatment and rehabilitation of fractures; Lippincot Williams and wilkins; 2nd Edition, 2021.
3. Christopher Mc Carthy: Grieves Modern Musculoskeletal Physiotherapy; Elsevier, 4th Edition, 2015.
4. Leon Chaitow: Muscle Energy Techniques; Elsevier; 4th Edition, 2019.
5. Wayne Hing: The Mulligan concept of manual therapy. Churchill Livingstone; 1st Edition, 2014.
6. Rose Mac Donald: Taping Techniques- Principles and Practice; Butterworth-Heinemann, 2nd Edition,2004.
7. Chris Kresge: The Feldenkrais Method- Learning Through Movement; Handspring Publishing Ltd;1st Edition,2021.
8. John Sharkey: The concise book of Dry Needling: A Practitioners Guide to Myofascial Trigger Point; North Atlantic Books;1st Edition,2017.
9. Susan B O Sullivan: Physical Rehabilitation; F A Davis; 7th Edition,2019.
10. Michel Probst: Physiotherapy in Mental Health and Psychiatry: A scientific and Clinical based Approach; Elsevier;1st Edition,2017.

VIDEO LECTURES:

1. https://youtu.be/1EGSAlPtSvc
2. https://youtu.be/TX3qmV-7g9A
3. https://youtu.be/VEMG7QjG-2w
4. https://youtu.be/2bjt-0FevRY
5. https://youtu.be/UKcYXdtd_6g
6. https://youtu.be/fnFvWsVblUk

WEB RESOURCES:

1. https://www.pdfdrive.com/
2. https://www.physio-pedia.com/
3. https://youtu.be/RuHEJs8Dibk
4. https://www.physio-pedia.com/Maitland%27s_Mobilisations
5. https://en.wikipedia.org/
6. https://www.csp.org.uk/conditions/knee-pain/video-exercises-knee-pain

PROGRAM ELECTIVE

Course Code	Course Title	L	T	P	S	C
22PT201005	GERIATRICS PHYSIOTHERAPY	2	-	-	-	2

Pre-Requisite -

Anti-Requisite -

Co-Requisite -

COURSE DESCRIPTION: This course gives an overview of different problems faced by old age people, physiological changes of aging, musculoskeletal physiotherapy evaluation, and management.

COURSE OUTCOMES: After successful completion of the course, students will be able to:

CO1. Understand the aging and systemic physiological changes in elders.

CO2. Apply the knowledge of evaluation and musculoskeletal management in geriatrics.

CO-PO-PSO Mapping Table:

Course Outcomes	Program Outcomes								Program Specific Outcomes		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	2	3	1	-	1	-	1	3	1	1
CO2	3	2	3	1	-	1	-	2	3	**1**	1
Course Correlation Mapping	**3**	**2**	**3**	**1**	**-**	**1**	**-**	**2**	**2**	**1**	**1**

Correlation Levels: 3: High; 2: Medium; 1: Low

COURSE CONTENT

Module 1: Introduction to Geriatrics ***(15 Periods)***

Geriatrics, theories of aging, physiological changes – cardio-pulmonary system, nervous system, musculoskeletal system, fundamental principles of physiotherapy in old people.

Module 2: Musculoskeletal physiotherapy in Geriatrics ***(15 Periods)***

Assessment of musculoskeletal impairments, Prevention of falls, Rehabilitation models, management of musculoskeletal impairments, evidence based practice in geriatrics and discharge planning.

Total Periods: 30

EXPERIENTIAL LEARNING

1. Energy conserving exercises
2. Stretching Exercises.
3. Breathing Exercises.
4. Prevention of falls.
5. Progressive Resistance Exercises.

RESOURCES

BOOKS:

1. Multani: Principles of geriatric physiotherapy, Jaypee medical publishers,1st Edition, 2008.
2. Cathy Jo cress: Hand book of geriatric care management; Jones and Barlett publishers, Inc; 4th Edition, 2015.
3. Andrew A Guccione: Geriatric Physical Therapy; Mosby, 3rd Edition, 2011.

VIDEO LECTURES:

1. https://youtu.be/jvIFA9W836w
2. https://youtu.be/v_Au06q5E18
3. https://youtu.be/Tx_rolpoS2w
4. https://youtu.be/xCB8T1TRguA
5. https://youtu.be/C6SDYeilb6M

WEB RESOURCES:

1. https://www.pdfdrive.com/
2. https://www.physio-pedia.com/
3. https://nzihf.ac.nz/personal-training/exercise-principles/
4. https://www.physio-pedia.com/Maitland%27s_Mobilisations
5. https://en.wikipedia.org/

UNIVERSITY ELECTIVE

Course Code	Course Title	L	T	P	S	C
22CB101703	**FORENSIC SCIENCE**	3	-		-	3

Pre-Requisite -

Anti-Requisite -

Co-Requisite -

COURSE DESCRIPTION: This course provides a detailed discussion on Concepts of Forensic Science, Tools and Techniques in Forensic Science, Forensic Photography, Crime Scene Management, Crime Scene Management Laws and Forensic Science.

COURSE OUTCOMES: *After successful completion of the course, students will be able to*:

CO1 Understand the basic concepts of Forensic science.

CO2 Apply various tools and techniques in forensic science for crime investigation.

CO3 Understand Forensic Photography fundamentals.

CO4 Perform Crime scene investigation, scene reconstruction and prepare reports.

CO5 Understand Legal aspects of Forensic Science.

CO-PO Mapping Table:

Course Outcomes	Program Outcomes											
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3											
CO2	3	3	2	2	2							
CO3	3	3										
CO4	3	3	2	2	2							
CO5	3	3	2	2	2							
Course Correlation Mapping	**3**	**3**	**2**	**2**	**2**							

Correlation Levels: ***3: High;*** ***2: Medium;*** ***1: Low***

COURSE CONTENT

Module 1: INTRODUCTION ***(09 Periods)***

Introduction, Need, Scope, Concepts and Significance of Forensic Science, History and Development of Forensic Science, Laws and Basic principles of Forensic Science,

Branches of forensic science, Organizational set-up of a Forensic Science Laboratory. Investigative strategies. Expert testimony and eye-witness report.

Module 2: TOOLS AND TECHNIQUES IN FORENSIC SCIENCE *(09 Periods)*

Basic principles of microscopy, spectroscopy, chromatography, Electrophoresis, Enzyme Linked Immunosorbent Assay (ELISA), Radio Immuno Assay (RIA). Measuring and optical instruments. Research methodologies; Formation of research design on a specific problem. Central tendency and Dispersion. Test of significance. Analysis of variance, Correlation and Regression.

Module 3: FORENSIC PHOTOGRAPHY *(8 Periods)*

Basic principles of Photography, Techniques of black & white and color photography, cameras, lenses, shutters, depth of field, film; exposing, development and printing techniques; Different kinds of developers and fixers; UV, IR, fluorescence illumination guided photography; Modern development in photography- digital photography, working and basic principles of digital photography; Surveillance photography. Videography and Crime Scene & laboratory photography.

Module 4: CRIME SCENE MANAGEMENT *(11 Periods)*

Crime scene investigations, protecting and isolating the crime scene; Documentation, sketching, field notes and photography. Searching, handling and collection, preservation and transportation of physical evidences, Chain of custody and Reconstruction of scene of crime. Report writing.

Module 5: LAW AND FORENSIC SCIENCE *(8 Periods)*

Legal aspects of Forensic Science: Forensic Science in the Criminal Justice System, The Criminal Investigation Process, Production of Evidence: The Subpoena, The Rules of Evidence, Authentication of Evidence: The Chain of Custody, The Admissibility of Evidence, Laboratory Reports, Examples of Analysis and Reports, Expert Testimony, Getting into Court, Testifying, Being a Witness and an Expert, Considerations for Testimony.

Total Periods: 45

EXPERIENCIAL LEARNING

1. Study of Computer Forensics and different tools used for forensic investigation
2. **Identify and list the steps for hiding and extract any text file behind an image file/ Audio file using Command Prompt**

(Note: It's an indicative one. The course instructor may change the activities and the same shall be reflected in course handout.)

RESOURCES

TEXT BOOKS:

1. Houck M.M and Siegel J.A, *Fundamentals of Forensic Science*, Elsevier, 2nd edition, 2010.
2. Sharma B.R, *Forensic Science in Criminal Investigation and Trials*, Universal Publishing Co., New Delhi, 2003.

REFERENCE BOOKS:

1. Nanda B.B and Tewari, R.K, *Forensic Science in India- A vision for the Twenty First Century*, Select Publisher, New Delhi, 2001.
2. James, S.H and Nordby, J.J, *Forensic Science- An Introduction to Scientific and Investigative Techniques*, CRC Press, USA, 2003.
3. Saferstein, Criminalistics, *An Introduction of Forensic Science*, Prentice Hall Inc, USA,2007.
4. Barry, A.J. Fisher, *Techniques of Crime Scene Investigation*, CRC Press, NewYork, 7th edition, 2003.

VIDEO LECTURES:

1. https://nptel.ac.in/courses/106106178
2. https://www.youtube.com/watch?v=X5fo1H7bc0g

WEB RESOURCES:

1. https://www.nist.gov/forensic-science
2. https://www.coursera.org/learn/forensic-science

UNIVERSITY ELECTIVE

Course Code	Course Title	L	T	P	S	C
22EC101701	**AI IN HEALTHCARE**	3	-	-	-	3

Pre-Requisite -

Anti-Requisite -

Co-Requisite -

COURSE DESCRIPTION: This course provides a detailed discussion on Concepts of Artificial Intelligence (AI) in Healthcare; The Present State and Future of AI in Healthcare Specialties; The Role of Major Corporations in AI in Healthcare; Applications of AI in Healthcare.

COURSE OUTCOMES: After successful completion of the course, students will be able to:

CO1 Understand the fundamental concepts of AI in Healthcare sector.

CO2 Analyze the present state and future of AI in Healthcare specialties for different scenarios.

CO3 Apply design concepts and metrics for AI in Healthcare.

CO4 Demonstrate basic concepts and terminologies of future applications of Healthcare in AI.

CO5 Develop AI applications through AI techniques for healthcare

CO-PO Mapping Table

Course Outcomes	Program Outcomes											
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	2	2	2	-	-	-	-	-	-	-	-
CO2	2	3	-	2	-	2	2	-	-	-	-	-
CO3	2	-	2	2	-	-	-	-	-	-	-	-
CO4	2	-	-	-	2	2	-	-	-	-	-	-
CO5			3									
Course Correlation Mapping	2	-	3	2	2	2	2	-	-	-	-	-

Correlation Levels: 3: High; 2: Medium; 1: Low

COURSE CONTENT

Module 1: INTRODUCTION TO ARTIFICIAL INTELLIGENCE IN HEALTHCARE ***(08 Periods)***

Introduction to AI in Healthcare, Benefits & Risks, AI in the health sector, AI versus human intelligence, The future of AI in health sector, AI & Neural networks.

Module 2: THE PRESENT STATE & FUTURE OF AI IN HEALTHCARE SPECIALTIES ***(10 Periods)***

Artificial Intelligence in: preventive healthcare, Radiology, Pathology, Surgery, Anesthesiology, Psychiatry, Cardiology, Pharmacy, Dermatology, Dentistry, Orthopedics, Ophthalmology.

Module 3: THE ROLE OF MAJOR CORPORATIONS IN AI IN HEALTHCARE ***(08 Periods)***

IBM Watson, The role of Google & Deep mind in AI in Healthcare, Baidu, Facebook & AI in Healthcare, Microsoft & AI in Healthcare.

Module 4: FUTURE OF HEALTHCARE IN AI ***(10 Periods)***

Evidence-based medicine, personalized medicine, Connected medicine, Virtual Assistants, Remote Monitoring, Medication Adherence, Accessible Diagnostic Tests, Smart Implantables, Digital Health and Therapeutics, Incentivized Wellness, Block chain, Robots, Robot-Assisted Surgery, Exoskeletons, Inpatient Care, Companions, Drones, Smart Places, Smart Homes, Smart Hospitals.

Module 5: APPLICATIONS OF AI IN HEALTHCARE ***(09 Periods)***

Case Study 1: AI for Imaging of Diabetic Foot Concerns and Prioritization of Referral for Improvements in Morbidity and Mortality.

Case Study 2: Outcomes of a Digitally Delivered, Low-Carbohydrate, Type 2 Diabetes Self-Management.

Case Study 3: Delivering A Scalable and Engaging Digital Therapy.

Case Study 4: Improving Learning Outcomes for Junior Doctors through the Novel Use of Augmented and Virtual Reality for Epilepsy.

Case Study 5: Big Data, Big Impact, Big Ethics: Diagnosing Disease Risk from Patient Data.

Total Periods: 45

EXPERIENTIAL LEARNING

1. Analyze how the artificial intelligence is used to predict the disease result and Prognosis Assessment of a patient.
2. How does drug discovery happen and how does AI is helping in drug discovery and Labs.
3. Justify that artificial intelligence provide engineering solutions for early detection and Diagnosis of diseases.
4. Demonstrate the prediction of bladder volume of a patient.

(Note: It's an indicative one. Course Instructor may change activities and shall be reflected in course Handout)

RESOURCES

TEXT BOOKS:

1. Dr. Parag Mahajan, *Artificial Intelligence in Healthcare*, MedManthra Publications, First Edition 2019.
2. Arjun Panesar, *Machine Learning and AI for Healthcare Big Data for Improved Health*, Apress Publications, 2019.

REFERENCE BOOKS:

1. Michael Matheny, Sonoo Thadaney Israni, Mahnoor Ahmed, and Danielle Whicher, *Artificial Intelligence in Health Care: The Hope, the Hype, the Promise, the Peril*, National Academy of Medicine Publication, First Edition 2019.

VIDEO LECTURES:

1. https://www.youtube.com/watch?v=-aHBwTQQyNU
2. https://intellipaat.com/blog/artificial-intelligence-in-healthcare/

Web Resources:

1. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6616181/
2. https://www.ibm.com/topics/artificial-intelligence-healthcare
3. https://builtin.com/artificial-intelligence/artificial-intelligence-healthcare

UNIVERSITY ELECTIVE

Course Code	Course Title	L	T	P	S	C
22SS201701	**VALUE EDUCATION**	3	-	-	-	3

Pre-Requisite -

Anti-Requisite -

Co-Requisite -

COURSE DESCRIPTION: This course deals with understanding the value of education and self-development, Imbibe good values in students, and making them know about the importance of character.

COURSE OUTCOMES: After successful completion of the course, students will be able to:

CO1. Demonstrate the knowledge of values and self-development

CO2. Analyze the importance of the cultivation of values.

CO3. Learn suitable aspects of personality and behavioral development

CO4. Function as a member and leader in multi-disciplinary teams by avoiding faulty thinking.

CO5. Develop character and competence for effective studies.

CO-PO Mapping Table:

Course Outcomes	Program Outcomes											
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	-	-	-	-	-	-	3	2	-	-	-
CO2	2	3	-	-	2	-	-	3	2	-	-	-
CO3	2	-	-	-	2	-	-	3	2	-	-	-
CO4	2	-	-	-	-	-	-	3	2	-	-	-
CO5	2	2	-	-	-	-	-	3	2	-	-	-
Course Correlation Mapping	**2**	**3**	**-**	**-**	**2**	**-**	**-**	**3**	**2**	**-**	**-**	**-**

Correlation Levels: ***3: High;*** ***2: Medium;*** ***1: Low***

COURSE CONTENT

Module 1: VALUES AND SELF-DEVELOPMENT ***(09 Periods)***

Values and self-development –Social values and individual attitudes. Work ethics, Indian vision of humanism. Moral and non-moral valuation. Standards and principles. Value judgements- Case studies

Module 2: IMPORTANCE OF CULTIVATION OF VALUES. ***(09 Periods)***

Importance of cultivation of values. Sense of duty. Devotion, Self-reliance. Confidence, Concentration. Truthfulness, Cleanliness. Honesty, Humanity. Power of faith, National Unity. Patriotism. Love for nature, Discipline- Case studies

Module 3: PERSONALITY AND BEHAVIOR DEVELOPMENT ***(09 Periods)***

Personality and Behavior Development - Soul and Scientific attitude. Positive Thinking. Integrity and discipline, Punctuality, Love and Kindness - Case studies

Module 4: AVOID FAULTY THINKING. ***(09 Periods)***

Avoid fault Thinking. Free from anger, Dignity of labour. Universal brotherhood and religious tolerance. True friendship. Happiness Vs suffering, love for truth. Aware of self-destructive habits. Association and Cooperation. Doing best for saving nature - Case studies

Module 5: CHARACTER AND COMPETENCE ***(09 Periods)***

Character and Competence –Holy books vs Blind faith. Self-management and Good health. Science of reincarnation, Equality, Nonviolence, Humility, Role of Women. All religions and the same message. Mind your Mind, Self-control. Honesty, Studying effectively- Case studies

Total Periods: 45

EXPERIENTIAL LEARNING

1. Demonstrate orally using your experiences of what values are naturally acceptable in a relationship to nurture or exploit others.
2. Prepare a report by identifying and analyzing the importance of cultivation of values.
3. Present a poster on different attitudes and behaviors.
4. Students give a PowerPoint presentation on doing best for nature.
5. Students are encouraged to bring a daily newspaper to class or to access any news related to the need for human values and note down the points.
6. Prepare a case study on how to maintain harmony with different religious people through character and competence.

(It’s an indicative one. The Course Instructor may change the activities and the same shall be reflected in the Course Handout)

RESOURCES

TEXTBOOKS:

1. R. Subramanaian, *Professional Ethics*, Oxford Higher Education, 2013.
2. Mike W. Martin and Roland Schinzinger, *Ethics in Engineering*, Tata McGraw-Hill, 3rd Edition, 2007.
3. Chakravarthy, S.K.: Values and ethics for Organizations: Theory and Practice, Oxford University Press, NewDelhi, 1999.

REFERENCE BOOKS:

1. M.G. Chitakra: Education and Human Values, A.P.H. Publishing Corporation, New Delhi, 2003
2. Awakening Indians to India, Chinmayananda Mission, 2003
3. Satchidananda, M.K.: Ethics, Education, Indian Unity and Culture, Ajantha Publications, Delhi, 1991

VIDEO LECTURES:

1. https://www.youtube.com/watch?v=90VQPZURN5c
2. https://www.youtube.com/watch?v=6ofPcK0uDaA
3. https://www.youtube.com/watch?v=5_f-7zCi79A
4. https://www.youtube.com/watch?v=2ve49BWAJRE
5. https://www.youtube.com/watch?v=kCOIfnxxQ5U

WEB RESOURCES:

1. https://www.livingvalues.net/
2. https://livingvalues.net/materials-for-schools/
3. https://www.edb.gov.hk/en/curriculum-development/4-key-tasks/moral-civic/index.html

UNIVERSITY ELECTIVE

Course Code	Course Title	L	T	P	S	C
22SS201702	**PEDAGOGY STUDIES**	3	-	-	-	3

Pre-Requisite -

Anti-Requisite -

Co-Requisite -

COURSE DESCRIPTION: This course deals with understanding pedagogical practices that are being used by teachers in formal and informal classrooms, the effectiveness of pedagogical practices, teacher education (curriculum and practicum), and the school curriculum and guidance materials that can best support effective pedagogy.

COURSE OUTCOMES: After successful completion of the course, students will be able to:

CO1 Demonstrate knowledge of pedagogical methodology

CO2 Analyze the functional knowledge in Pedagogical practices, Curriculum, and Teacher Education

CO3 Learn effective pedagogical practices and apply strategies.

CO4 Function effectively as an individual and as a member of the Professional development.

CO5 Understand research Gaps and provide future Directions.

CO-PO Mapping Table:

Course Outcomes	Program Outcomes											
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2	1	-	-	-	-	-	-	-	3	-	-
CO2	2	3	-	-	3	-	-	-	-	3	-	-
CO3	2	2	-	-	3	-	-	-	-	3	-	-
CO4	1	1	-	-	-	-	-	-	3	3	-	-
CO5	-	-	-	-	-	-	-	-	-	3	-	-
Course Correlation Mapping	2	2	-	-	3	-	-	-	3	3	-	-

Correlation Levels: ***3: High;*** ***2: Medium;*** ***1: Low***

COURSE CONTENT

Module 1: INTRODUCTION AND METHODOLOGY ***(09 Periods)***

Aims and rationale, Policy background, Conceptual framework and terminology Theories of learning, Curriculum, Teacher education. Conceptual framework, Research questions**.** Overview of Methodology and Searching- Case studies

Module 2: THEMATIC OVERVIEW ***(09 Periods)***

Pedagogical practices are being used by teachers in formal and informal classrooms in developing countries. Curriculum, Teacher Education- Case studies

Module 3 EFFECTIVENESS OF PEDAGOGICAL PRACTICES ***(09 Periods)***

Evidence on the effectiveness of pedagogical practices, Methodology for the in-depth stage: quality

assessment of included studies, teacher education (curriculum and practicum) and the school curriculum and guidance materials best support effective pedagogy, Theory of change, Strength and nature of the body of evidence for effective pedagogical practices. Pedagogic theory and pedagogical approaches. Teachers' Attitudes and beliefs and Pedagogic strategies- Case studies

Module 4 PROFESSIONAL DEVELOPMENT ***(09 Periods)***

alignment with classroom practices and follow-up support, Peer support, and Support from the head teacher and the community. Curriculum and assessment, Barriers to learning: limited resources and large class sizes- Case studies

Module 5 RESEARCH GAPS AND FUTURE DIRECTIONS ***(09 Periods)***

Research design**,** Contexts**,** Pedagogy**,** Teacher Education**,** Curriculum and Assessment**,** Dissemination and research impact- Case studies

Total Periods: 45

EXPERIENTIAL LEARNING

1. List out the self-improvement in you after going through pedagogical methodologies.
2. Discuss different practices that you would like to adopt in the curriculum.
3. Describe in your own words how can you bring effectiveness to the curriculum.
4. Imagine you are a head teacher and illustrate different barriers to learning.
5. Assume you are a teacher and Interpret different directions that you would bring for the assessment of the students.

(It's an indicative one. The Course Instructor may change the activities and the same shall be reflected in the Course Handout)

RESOURCES

TEXTBOOK:

1. Ackers J, Hardman F (2001) Classroom interaction in Kenyan primary schools, Compare, 31 (2): 245-261.
2. Alexander RJ (2001) Culture and pedagogy: International comparisons in primary education.

REFERENCES:

1. Akyeampong K (2003) Teacher training in Ghana - does it count? Multi-site teacher
2. Agrawal M (2004) Curricular reform in schools: The importance of evaluation, Journal of
3. Akyeampong K, Lussier K, Pryor J, Westbrook J (2013) Improving teaching and learning of
4. Chavan M (2003) Read India: A mass scale, rapid, 'learning to read' campaign.

VIDEO LECTURES:

1. https://www.youtube.com/watch?v=WL40UeySag4
2. https://www.youtube.com/watch?v=MMXaXDIHFJ8
3. https://www.youtube.com/watch?v=7uJL1R6M4Iw

WEB RESOURCES:

1. https://acrl.ala.org/IS/instruction-tools-resources-2/pedagogy/a-selected-list-of-journals-on-teaching-learning/
2. https://guides.douglascollege.ca/TLonline/resourcesforonlinepedagogy
3. https://www.refseek.com/directory/teacher_resources.html

UNIVERSITY ELECTIVE

Course Code	Course Title	L	T	P	S	C
22LG201701	**PERSONALITY DEVELOPMENT**	3	-	-	-	3

Pre-Requisite -

Anti-Requisite -

Co-Requisite -

COURSE DESCRIPTION: This course gives awareness to students about the various dynamics of personality development.

COURSE OUTCOMES: After successful completion of the course, students will be able to:

CO1. Demonstrate knowledge in Self-Management and Planning Career

CO2. Analyze the functional knowledge in attitudes and thinking strategies

CO3. Learn and apply soft skills for professional success.

CO4. Function effectively as an individual and as a member in diverse teams

CO5. Communicate effectively in public speaking in formal and informal situations.

CO-PO Mapping Table:

Course Outcomes	Program Outcomes								
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9
CO1	2	1	-	-	-	-	-	-	-
CO2	2	3	-	-	-	-	-	-	-
CO3	2	2	-	-	3	-	-	-	-
CO4	1	1	-	-	-	-	-	-	3
CO5	-	-	-	-	-	-	-	-	-
Course Correlation Mapping	**2**	**2**	**3**	**-**	**3**	**-**	**-**	**-**	**3**

Correlation Levels: 3: High; 2: Medium; 1: Low

COURSE CONTENT

Module 1: SELF-ESTEEM & SELF-IMPROVEMENT ***(09 Periods)***

Know Yourself – Accept Yourself; Self-Improvement: Plan to Improve - Actively Working to Improve Yourself- Exercises- case studies

Module 2: DEVELOPING POSITIVE ATTITUDES ***(09 Periods)***

How Attitudes Develop – Attitudes are Catching – Improve Your Attitudes – Exercises- case studies

Module 3 SELF-MOTIVATION & SELF-MANAGEMENT ***(09 Periods)***

Show Initiative – Be Responsible Self-Management; Efficient Work Habits – Stress Management – Employers Want People Who can Think – Thinking Strategies- Exercises- case studies

Module 4 GETTING ALONG WITH THE SUPERVISOR ***(09 Periods)***

Know your Supervisor – Communicating with your Supervisor – Special Communication with your Supervisor – What Should you Expect of Your Supervisor? – What your Supervisor expects

of you - Moving Ahead Getting Along with your Supervisor- Exercises- case studies

Module 5 WORKPLACE SUCCESS ***(09 Periods)***

First Day on the Job – Keeping Your Job – Planning Your Career – Moving Ahead- Exercises- case studies

Total Periods: 45

EXPERIENTIAL LEARNING

1. List out the self-improvements in you on the charts and explain in detail.
2. Discuss different famous personalities and their attitudes.
3. Describe different personalities with respect to self-motivation and self-management.
4. Imagine you are a supervisor and illustrate different special communications.
5. Assume and Interpret different experiences on the first day of your job.

RESOURCES

TEXTBOOK:

1 Harold R. Wallace and L. Ann Masters, *Personal Development for Life and Work*, Cengage Learning, Delhi, 10th edition Indian Reprint, 2011. (6th Indian Reprint 2015)

2 Barun K. Mitra, *Personality Development and Soft Skills,* Oxford University Press, 2011.

REFERENCE BOOKS:

1 K. Alex, *Soft Skills,* S. Chand & Company Ltd, New Delhi, 2nd Revised Edition,
2 Stephen P. Robbins and Timothy A. Judge*, Organizational Behaviour*, Prentice Hall, Delhi, 16th edition, 2014

VIDEO LECTURES:

1. https://www.youtube.com/watch?v=6Y5VWBLi1es
2. https://www.youtube.com/watch?v=H9qA3inVMrA

Web Resources:

1. https://www.universalclass.com/.../the-process-of-perso...
2. https://www.ncbi.nlm.nih.gov/pubmed/25545842
3. https://www.youtube.com/watch?v=Tuw8hxrFBH8