GURU KASHI UNIVERSITY
PUNJAB - INDIA

Programme Syllabus Booklet

Master of Physiotherapy (Musculoskeletal)
(MPT Musculoskeletal - 715)

Session: 2021-22

Department of Physical Education
Guru Kashi University, Talwandi Sabo

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Annexure - 1

Programme Name: Master of Physiotherapy (Musculoskeletal)

Programme Code: 715

Programme Outcomes:

Physiotherapy Post - Graduates will be able to:

PO	Statement
PO1	**Physiotherapy knowledge:** Apply the knowledge of biomechanics, orthopedics and exercise physiology to the solution of complex musculoskeletal conditions.
PO2	**Problem analysis:** Identify musculoskeletal abnormalities based on patient assessment and medical tests to reach an appropriate diagnosis.
PO3	**Design/development of solutions:** Design rehabilitation program for complex medical problems and set realistic short and long term goals with appropriate consideration of occupational as well as social requirements of the patient.
PO4	**Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
PO5	**Modern tool usage:** Create, select, and apply appropriate therapeutic techniques, electrotherapy equipments, and advanced interventions to treat various musculoskeletal conditions, with an understanding of their limitations.
PO6	**The physiotherapist and society:** Apply contextual and clinical knowledge to assess the health issues of the society and recognize the role of physiotherapy in context of the national priorities in the health sector.
PO7	**Environment and sustainability:** Understand the impact of the physiotherapy in context of healthcare needs of the society anddemonstrate the knowledge of, and need for sustainable development.
PO8	**Ethics:** Apply ethical principles and commit to professional ethics and responsibilities towards a patient and norms of the medical practice.

The Programme outcomes for the programme Master of Physiotherapy (Musculoskeletal) are as follows:

PSO	Statement
PSO 1	To understand the application of a broad range of manual therapeutic techniques and electrotherapy modalities.
PSO 2	To gain expertise in organizing and managing a rehabilitation programme.
PSO 3	Become skilled to work as a clinical physiotherapist or physiotherapy teacher.

Annexure - 2

Study Scheme										
Semester : 1st										
Sr.	Subject Code	Subject Name	Type of Subject T/P	Hours per week			Credits	Internal Marks	External Marks	Total Marks
				L	T	P				
1.	715101	Biomechanics	T	5	0	0	5	50	50	100
2.	715102	Research and Biostatistics	T	5	0	0	5	50	50	100
3.	715103	Physiotherapy Methods	T	5	0	0	5	50	50	100
4.	715104	Assessment and evaluation in musculoskeletal conditions	T	5	0	0	5	50	50	100
5.	715105	Assessment and evaluation in musculoskeletal conditions - Lab	P	0	0	6	3	60	40	100
Total Credits				20		6	23			

Semester : 2nd										
Sr.	Subject Code	Subject Name	Type of Subject T/P	Hours per week			Credits	Internal Marks	External Marks	Total Marks
				L	T	P				
1.	715201	Management, Ethical issues and Pedagogy	T	5	0	0	5	50	50	100
2.	715202	Electrotherapy	T	5	0	0	5	50	50	100
3.	715203	General Orthopedics	T	5	0	0	5	50	50	100
4.		**Elective**	T	5	0	0	5	50	50	100
Total Credits				20			20			

Elective-I (Select one of the following subjects)		
S.No	**Subject Code**	**Subject Name**
1	715204	Hospital Management and Planning
2	715205	Social and Preventive Medicine

Semester : 3rd										
Sr.	Subject Code	Subject Name	Type of Subject T/P	Hours per week			Credits	Internal Marks	External Marks	Total Marks
				L	T	P				
1.	715301	Exercise Physiology and Nutrition	T	5	0	0	5	50	50	100
2.	715302	Physiotherapy for traumatic musculoskeletal conditions	T	5	0	0	5	50	50	100
3.	715303	Rehabilitation, prosthetics and Orthotics	T	5	0	0	5	50	50	100
4.		**Elective II**	T	5	0	0	5	50	50	100
Total Credits				20			20			

Elective-II (Select one of the following subjects)		
S.No	**Subject Code**	**Subject Name**
1	715304	Psychotherapy
2	715305	Guidance and Counseling for Physiotherapists

Semester : 4th										
Sr.	Subject Code	Subject Name	Type of Subject T/P	Hours per week			Credits	Internal Marks	External Marks	Total Marks
				L	T	P				
1.	715401	Advance Physiotherapy techniques in Musculoskeletal conditions	T	5	0	0	5	50	50	100
2.	715402	Physiotherapy management for vertebral disorders	T	5	0	0	5	50	50	100
3.	715403	Advance Physiotherapy techniques in Musculoskeletal conditions - Lab	P	0	0	6	3	60	40	100
4.	715404	Dissertation					6	200	100	300
Total Credits				10		6	19			

Annexure - 3

Semester: 1st
Subject Name: Biomechanics
Subject Code: 715101

	L	T	P
Credits: 05	**5**	**0**	**0**

Course Out comes: On successful completion of this course, the student will be able to

CO	Statement
CO1	Apply the principles of biomechanics while examining the movements of patients
CO2	Diagnose postural mal-alignments and prescribe corrective exercises for the same.
CO3	Improve the playing techniques of the players on the basis of biomechanical concepts .
CO4	Use advanced tools and instruments required for examining gait.

Course Content

UNIT I

Applied Biomechanics: Applied mechanics in evaluation procedure, Biomechanics of tissue and structures of musculoskeletal system

UNIT II

Biomechanical analysis: Biomechanics of posture, Gait analysis, Analytical tools and techniques and analysis of human motion

UNIT III

Kinetics & Kinematics: Methods of kinetics and kinematics investigation, Applied biomechanics of spine, upper and lower extremities.

UNIT IV

Corrective Measures: Patient positioning, body mechanics and transfer techniques, Ergonomics

Text Books

- Panjabi, M. M., & White III, A. A. (1980). Basic biomechanics of the spine. *Neurosurgery*, *7*(1), 76-93.
- Levangie, P. K., &Norkin, C. C. (2011). Joint structure and function: a comprehensive analysis.
- Ruby, L. K., Conney III, W. P., An, K. N., Linscheid, R. L., & Chao, E. Y. S. (1988). Relative motion of selected carpal bones: a kinematic analysis of the normal wrist. *The Journal of hand surgery*, *13*(1), 1-10.

The mapping of the PO/PSO/CO attainment is as follows:

PO/PSO/ CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	2	2	1	1	1	2	1	1	1	1	1
CO2	2	2	1	1	1	2	1	1	1	1	1
CO3	1	2	1	1	1	3	1	1	1	1	1
CO4	2	3	1	1	1	3	1	1	2	1	1
Average	1.75	2.25	1	1	1	2.5	1	1	1.25	1	1

The correlation levels are: "1" – Low Correlation, "2" – Medium Correlation, "3" – High Correlation and "-" indicates there is no correlation.

Semester: 1st
Subject Name: Research and Statistics
Subject Code: 715102

	L	T	P
Credits: 05	**5**	**0**	**0**

Course Outcomes: On successful completion of this course, the student will be able to

CO	Statement
CO1	Plan and design a research proposal
CO2	Learn about various data collection methods.
CO3	Understand the statistical measures used for analysis and interpretation of research data.
CO4	Draw conclusions on the basis of the results of analyzed data of a given study.

Course Content

UNIT I

Introduction to research: Introduction to research and biostatistics, Methods of research and investigation, Hypothesis

UNIT II

Research Methodology: Basic probability and sampling**,** Methods of data collection**,** Sampling and sample size determination

UNIT III

Validity and reliability evaluation, Research process and criteria of good research, Format of scientific documents

UNIT IV

Data presentation and central tendencies, Standard deviation and standard errors, Skewness and kurtosis, Odd ratio, receiver operating curve, Correlation and regression, Parametric and non-parametric tests

Text Books

1. Liddle, S. D., Baxter, G. D., &Gracey, J. H. (2009). Physiotherapists' use of advice and exercise for the management of chronic low back pain: a national survey. *Manual therapy*, *14*(2), 189-196.
2. Kothari, C. R. (2004). *Research methodology: Methods and techniques*. New Age International.
3. Alexander, P., Chang, C. M., Yang, C. H., Alkhateeb, H. M., & Oaks, J. A. (2005). Publications by University of Indianapolis Faculty and Staff. *Historia Mathematica*, *32*, 400-425.

The mapping of the PO/PSO/CO attainment is as follows:

PO/PSO/CO	PO 1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	1	1	3	2	1	2	2	1	2	1	2
CO2	2	1	3	3	1	2	1	2	2	1	1
CO3	1	1	3	2	1	2	1	1	2	1	1
CO4	2	1	2	1	2	3	3	1	3	2	2
Average	1.5	1	2.75	2	1.25	2.25	1.75	1.25	2.25	1.25	1.5

The correlation levels are: "1" – Low Correlation, "2" – Medium Correlation, "3" – High Correlation and "-" indicates there is no correlation.

Semester: 1st
Subject Name: Physiotherapy Methods
Subject Code: 715103

	L	T	P
Credits: 05	**5**	**0**	**0**

Course Outcomes: On successful completion of this course, the student will be able to

CO	Statement
CO1	Understand the principles of various mobilization techniques.
CO2	Become proficient in application and demonstration of therapeutic exercises.
CO3	Identify the physiological and therapeutic effects of various physiotherapy techniques
CO4	Comprehend the effects of yoga on various systems of human body.

Course Content

UNIT I

Basic Concepts: Principle of therapeutic exercises, Definition, Biophysics of contractile and non contractile tissues, Response to mechanical loading

UNIT II

Effects and uses of following exercises: Dynamic Exercises, Plyometric Exercises, Isokinetic Exercises, Kinetic chain exercises, Balance and coordination exercises

UNIT III

Mobilization: Clinical reasoning and differential clinical diagnosis based on various approaches such as Maitland, Kaltenborne, Cyriax, Mulligan, Meckenzieetc

UNIT IV

Yoga: Yoga – Concept, history, background, pranayam and asanas.

Text Books

- Kisner, C., Colby, L. A., &Borstad, J. (2017). *Therapeutic exercise: foundations and techniques*. Fa Davis.The Principle of Exercise Therapy -Gardiner (2005) - C.B.S.Delhi.
- Norkin, C. C., & White, D. J. (2016). *Measurement of joint motion: a guide to goniometry*. FA Davis.
- Gardiner, M. D. (1973). Principles Of Exercise Therapy: M Dena Gardiner.

The mapping of the PO/PSO/CO attainment is as follows:

PO/PSO/CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	2	3	2	1	2	1	3	1	2	2	2
CO2	1	2	1	1	2	2	3	2	1	2	2
CO3	1	3	1	1	3	2	3	2	2	3	3
CO4	2	3	1	2	3	2	3	3	3	3	3
Average	1.5	2.75	1.25	1.25	2.5	1.75	3	2	2	2.5	2.5

The correlation levels are: "1" – Low Correlation, "2" – Medium Correlation, "3" – High Correlation and "-" indicates there is no correlation.

Semester: 1st
Subject Name: Assessment and Evaluation in musculoskeletal conditions
Subject Code: 715104

	L	T	P
Credits: 05	**5**	**0**	**0**

Course Outcomes: On successful completion of this course, the student will be able to

CO	Statement
CO1	Differentiate between normal and abnormal posture and gait.
CO2	Become adept in undertaking a detailed assessment of disorders and injuries related to the musculoskeletal system
CO3	Identify the mechanism of injury and the underlying degenerative changes.
CO4	Interpret of the results and reports of various radiological and haematological tests.

Course Content

UNIT I

Basic Principles: Assessment and evaluation in orthopedics based on Maitland and Cyriax method, Physical disability evaluation and ICF classification

UNIT II

Assessment & Evaluation: Clinical Gait assessment, Postural assessment, Functional assessment, Geriatric assessment, Assessment of amputee

UNIT III

Examination: Balance, tone, flexibility, tightness, sensory and motor assessment, Muscle testing, limb length and reflex testing, Investigatory procedures

UNIT IV

Detailed Musculoskeletal Examination
Examination of spine, Examination of upper limb (shoulder, elbow, wrist & hand) and Examination of lower extremity (pelvis, hip, knee, ankle and foot).

Text Books

- Thompson, A. (2013). *Tidy's Physiotherapy.* Varghese publishing House.
- Sullivan, S. (2013). *Physical Rehabilitation Assessment and Treatment*. Jaypee brothers, Delhi.
- Maheshwari, J., &Mhaskar, V. A. (2019). *Essential orthopaedics:(including clinical methods)*. Jaypee Brothers Medical Publishers.

- Brotzman, S. B., &Manske, R. C. (2011). *Clinical orthopaedic rehabilitation e-book: An evidence-based approach-expert consult*. Elsevier Health Sciences.

The mapping of the PO/PSO/CO attainment is as follows:

PO/PSO/CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	3	3	3	1	2	1	1	3	3	1
CO2	2	3	3	3	1	2	1	2	3	3	1
CO3	2	3	3	2	2	3	2	2	2	2	3
CO4	1	1	1	2	3	3	2	2	1	2	1
Average	2	2.5	2.5	2.5	1.75	2.5	1.5	1.75	2.25	2.5	1.5

The correlation levels are: "1" – Low Correlation, "2" – Medium Correlation, "3" – High Correlation and "-" indicates there is no correlation.

Semester: 1st
Subject Name: Assessment and Evaluation in musculoskeletal conditions - Lab
Subject Code: 715105

	L	T	P
Credits: 03	**0**	**0**	**6**

Course Outcomes: On successful completion of this course, the student will be able to

CO	Statement
CO1	Develop observation and palpation skills
CO2	Become adept in charting out muscle strength and joint range of motion.
CO3	Gain expertise in using functional scales for assessment.
CO4	Perform special tests to draw an appropriate diagnosis.

UNIT I

Concept based assessment - Practical
Assessment and evaluation in orthopedics based on Maitland and Cyriax method, Physical disability evaluation and ICF classification

UNIT II

Functional Assessment & Evaluation – Practical
Clinical Gait assessment, Postural assessment, Functional assessment, Geriatric assessment, Assessment of amputee

UNIT III

Examination Skills
Balance, tone, flexibility, tightness, sensory and motor assessment, Muscle testing, limb length and reflex testing, Investigatory procedures

UNIT IV

Subjective and objective musculoskeletal assessment - Practical
Examination of spine, Examination of upper limb (shoulder, elbow, wrist & hand) and Examination of lower extremity (pelvis, hip, knee, ankle and foot).

Text Books

- Magee, D. J. (2014). *Orthopedic physical assessment-E-Book*. Elsevier Health Sciences.
- Johanson, M. A., Donatelli, R., Wooden, M. J., Andrew, P. D., & Cummings, G. S. (1994). Effects of three different posting methods on controlling abnormal subtalar pronation. *Physical Therapy*, *74*(2), 149-158**.**
- Maheshwari, J., &Mhaskar, V. A. (2019). *Essential orthopaedics:(including clinical methods)*. Jaypee Brothers Medical Publishers.
- Brotzman, S. B., &Manske, R. C. (2011). *Clinical orthopaedic rehabilitation e-book: An evidence-based approach-expert consult*. Elsevier Health Sciences.

The mapping of the PO/PSO/CO attainment is as follows:

PO/PSO/CO	PO 1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	1	1	3	2	1	2	2	1	2	1	1
CO2	1	1	3	3	1	2	1	1	2	1	1
CO3	1	1	3	2	1	2	1	1	2	1	1
CO4	1	1	3	3	1	2	1	2	2	1	1
Average	1	1	3	2.5	1	2	1.25	1.25	2	1	1

The correlation levels are: "1" – Low Correlation, "2" – Medium Correlation, "3" – High Correlation and "-" indicates there is no correlation.

Semester: 2nd
Subject Name: Management, Ethical issues and Pedagogy
Subject Code: 715201

	L	T	P
Credits: 05	**5**	**0**	**0**

Course Outcomes: On successful completion of this course, the student will be able to

CO	Statement
CO1	Identify and describe the philosophies of education.
CO2	Understand the concepts and methods of teaching and learning.
CO3	Become proficient of designing a curriculum.
CO4	Develop skills for imparting clinical education

Course Content

UNIT I

Ethical issues, morality and legality: Hospital as an organization, Rules of professional conduct, Code of ethics, Functions of Physiotherapy associations, Standard of practice for physiotherapists, Liability and obligations in case of medical legal action, Law of disability and discrimination, Confidentiality of patient's status & Rights of patients , Sexual and physical abuse, Client interest and satisfaction, Professional issues, Consumer protection law, health law, Informed consent, Physical and sexual abuse, Confidence and communication, Malpractice & Negligence and Rights of patients, Status of physiotherapist in health care

UNIT II

Communication & Education: Communication skills, Types of communication, Elements of good communication, Barriers to communication, Education – aim, function and agencies, Taxonomy of education, Agencies of education
Formal and informal modes, Education in Physiotherapy

UNIT III

Management and administration in Physiotherapy practice: Planning, organizing, staffing, finance, marketing, controlling, directing, Setting of a physiotherapy service unit

UNIT IV

Teaching and Learning & Curriculum: Concept of teaching and techniques of teaching, Teaching methods and skills, Clinical teaching methods,Laws of learning and learning style, Factors affecting learning, Role of teacher, Planning for teaching, Teaching aids, Guidance and counseling, Measurement and evaluation, Faculty development. Concept and types of curriculum, Factors affecting curriculum, Basic principles of curriculum, Steps in curriculum development

Text Books

- Wink, J. (2005). *Critical pedagogy: Notes from the real world* (p. 167). New York, NY: Pearson/Allyn & Bacon.
- Gardner, D. K. (1984). Principle and pedagogy: CHU Hsi and the Four Books. *Harvard Journal of Asiatic Studies*, *44*(1), 57-81.
- McLean, S. (2013). Public pedagogy, private lives: Self-help books and adult learning. *Adult Education Quarterly*, *63*(4), 373-388.

The mapping of the PO/PSO/CO attainment is as follows:

PO/PSO/CO	PO 1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	1	1	1	1	2	1	1	1	1	2
CO2	2	1	2	2	1	1	1	2	2	1	1
CO3	3	1	2	1	2	1	2	1	2	3	1
CO4	2	1	1	1	1	1	1	1	2	1	1
Average	2.5	1	1.5	1.25	1.25	1.25	1.25	1.25	1.75	1.5	1.25

The correlation levels are: "1" – Low Correlation, "2" – Medium Correlation, "3" – High Correlation and "-" indicates there is no correlation.

Semester: 2nd
Subject Name: Electrotherapy
Subject Code: 715202

	L	T	P
Credits: 05	**5**	**0**	**0**

Course Outcomes: On successful completion of this course, the student will be able to

CO	Statement
CO1	Comprehend the principles of electrotherapy modalities
CO2	Identify the physiological and therapeutic effects of various modalities
CO3	Become proficient in application of various electrotherapy modalities based on patient condition
CO4	Use specific electrotherapy equipment's for the purpose of diagnosis.

Course Content

UNIT I

Diagnostic procedures: Nerve conduction studies, Electromyography, Evoked potentials, Electro-diagnosis with therapeutic currents, Biofeedback

UNIT II

Advanced Techniques: Advanced electrotherapeutics for pain management, Advanced electrotherapeutics in wound care, scar management, keloids, muscle plasticity and integumentary conditions

UNIT III

Therapeutic Currents: Physiological and therapeutic effects of low, medium and high frequency currents, Deep heating modalities – Short wave diathermy, Microwave diathermy, Ultrasound

UNIT IV

Superficial heating modalities – Hydrocollator packs, paraffin wax bath, Cryotherapy, Principles and applications of advanced electrotherapy modalities – LASER, Shockwave therapy

Text Books

- Robertson, V., Ward, A., Low, J., Reed, A., & MCSP, D. (2006). *Electrotherapy explained: principles and practice*. Elsevier Health Sciences.Claytons Electro therapy, Forster &Palastange (2005), CBS publishers.
- Watson, T. (Ed.). (2008). *Electrotherapy: evidence-based practice*. Elsevier Health Sciences.
- Singh, J. (2012). *Textbook of electrotherapy*. Jaypee Brothers Publishers.

The mapping of the PO/PSO/CO attainment is as follows:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	2	3	1	1	2	1	1	3	2	1
CO2	2	2	1	1	2	1	3	2	1	1	1
CO3	3	1	1	2	2	1	3	2	2	1	2
CO4	1	2	2	1	1	1	2	3	1	1	2
Average	2.25	1.75	1.75	1.25	1.5	1.25	2.25	2	1.75	1.25	1.5

The correlation levels are: "1" – Low Correlation, "2" – Medium Correlation, "3" – High Correlation and "-" indicates there is no correlation.

Semester: 2nd
Subject Name: General orthopedics
Subject Code: 715203

	L	T	P
Credits: 05	**5**	**0**	**0**

Course Outcomes: On successful completion of this course, the student will be able to

CO	Statement
CO1	Learn about various diseases which can have an impact on the performance of a sportsperson .
CO2	Develop skills to diagnose deformities and mal-alignments.
CO3	Gain knowledge about pathology and prognosis of contagious diseases effecting bones.
CO4	Become adept in designing andprescribing corrective exercises based on player's requirements.

Course Content

UNIT I

Osseous diseases: Rheumatic disorder, Reiter's disease, Osteonecrosis and osteochondritis, Degenerative disorders, Psoriasis

UNIT II

Medical conditions: Metabolic and endocrine disorders, Tumours of musculoskeletal system, Vascular disorders, Neuromuscular disorders

UNIT III

Disorders affecting extremities: Bony and soft tissue disorder of upper and lower extremities, Infections in the bones

Unit IV

Deformities: Congenital malformations, Correction of bone deformities, Developmental disorders

Text Books

- Walker, B. R., &Colledge, N. R. (2013). *Davidson's principles and practice of medicine*. Elsevier Health Sciences.
- Mohn&Gaectier (1995). *Guided to clinical Neurology*. Churchill Livingstone.
- Thompson, A. (2013). *Tidy's Physiotherapy.* Varghese publishing House.
- Maheshwari, J., &Mhaskar, V. A. (2019). *Essential orthopaedics:(including clinical methods)*. Jaypee Brothers Medical Publishers.

The mapping of the PO/PSO/CO attainment is as follows:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	1	2	1	1	1	1	2	1	2	1	1
CO2	2	1	1	2	3	1	2	2	2	1	2
CO3	1	3	3	2	2	2	3	2	1	3	2
CO4	1	2	2	3	1	2	1	3	3	3	1
Average	1.25	2	1.75	2	1.75	1.5	2	2	2	2	1.5

The correlation levels are: "1" – Low Correlation, "2" – Medium Correlation, "3" – High Correlation and "-" indicates there is no correlation.

Semester: 3rd
Subject Name: Exercise Physiology and Nutrition
Subject Code: 715301

	L	T	P
Credits: 05	**5**	**0**	**0**

Course Outcomes: On successful completion of this course, the student will be able to

CO	Statement
CO1	Learn about the metabolism process in the human body
CO2	Become proficient in undertaking tests to analyze performance based on certain parameters
CO3	Gain knowledge about nutrition and its effect on exercise
CO4	Develop skills to assess body composition

Course Content

UNIT I

Bioenergetics: Bioenergetics of exercises, Basal metabolic rate, resting metabolic rate, factors affecting, energy cost of exercise, MET, Physical activity classification based on energy expenditure

UNIT II

Energy systems: Role of aerobic and anaerobic mechanism during exercises, Acute effects of high, burst and short duration exercises, Exercise testing planning and prescription, Body temperature regulation

UNIT III

Exercise Impact: Respiratory response to exercise, Cardiovascular response to exercise, Hormonal response to exercise, Exercise and acid base balance, Conditioning exercise for strength, duration and flexibility

UNIT IV

Nutrition and nutrition in exercise, Metabolism of carbohydrate, fat, protein, vitamin, mineral and water
Body composition and Obesity exercises for weight reduction

Text Books

- Powers, SK and Howley, ET (2001). *Exercise Physiology*. Mc Graw Hill
- Fahey, TD, White, TP. Mayfield Publishing Company (1996). *Exercise Physiology- Human Bioenergetics and its Application.* Brooks, GA,
- McArdle, WD, Katch, FI &Katch, VL (2001) Exercise Physiology. 5th ed. Lippincott, Williams & Wilkins.

The mapping of the PO/PSO/CO attainment is as follows:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	1	1	2	2	1	1	2	2	2	1	1
CO2	2	1	1	1	2	2	1	2	2	1	1
CO3	2	2	3	2	1	1	3	1	1	3	1
CO4	1	3	3	2	1	2	3	1	3	1	1
Average	1.5	1.75	2.25	1.75	1.25	1.5	2.25	1.5	2	1.5	1

The correlation levels are: "1" – Low Correlation, "2" – Medium Correlation, "3" – High Correlation and "-" indicates there is no correlation.

Semester: 3rd
Subject Name: Physiotherapy for traumatic musculoskeletal conditions
Subject Code: 715302

	L	T	P
Credits: 05	**5**	**0**	**0**

Course Outcomes: On successful completion of this course, the student will be able to

CO	Statement
CO1	Learn about various musculoskeletal conditions resulting from trauma.
CO2	Gain knowledge about the various orthopaedic surgeries.
CO3	Identify the complications associated with fractures.
CO4	Become proficient in designing post injury and post surgery rehabilitation programme

Course Content

UNIT I

Fractures: Fractures of Upper limb, fractures of lower limb and pelvis fracture

UNIT II

Orthopedic surgeries: Menisectomy, Patellectomy, Arthoplasties, Arthrodesis, Osteotomies

UNIT III

Corrective surgeries: Bone grafting, Bone Lengthening, Tendon transfers, Soft Tissue release, Nerve Repair and grafting

UNIT IV

Other conditions: Burns**,** Amputation

Text Books

- Maheshwari, J., &Mhaskar, V. A. (2019). *Essential orthopaedics:(including clinical methods)*. Jaypee Brothers Medical Publishers.
- Brotzman, S. B., &Manske, R. C. (2011). *Clinical orthopaedic rehabilitation e-book: An evidence-based approach-expert consult*. Elsevier Health Sciences.
- Thompson, A. (2013). *Tidy's Physiotherapy.* Varghese publishing House.
- Sullivan, S. (2013). *Physical Rehabilitation Assessment and Treatment*. Jaypee brothers, Delhi

The mapping of the PO/PSO/CO attainment is as follows:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	1	3	2	2	2	1	3	1	1	3	3
CO2	2	1	2	1	1	2	2	2	2	1	1
CO3	1	1	1	2	3	1	1	2	2	2	1
CO4	2	2	2	1	3	2	2	1	2	2	3
Average	1.5	1.75	1.75	1.5	2.25	1.5	2	1.5	1.75	2	2

The correlation levels are: "1" – Low Correlation, "2" – Medium Correlation, "3" – High Correlation and "-" indicates there is no correlation.

Semester – 3rd
Subject Name: Rehabilitation, Orthotics and Prosthetics
Subject Code: 715303

	L	T	P
Credits: 05	**5**	**0**	**0**

Course Outcomes: On successful completion of this course, the student will be able to

CO	Statement
CO1	Identify various disabilities based on standardized guidelines and classification.
CO2	Learn about different models of rehabilitation and the role of rehabilitation team members.
CO3	Design and implement a rehabilitation programme as per the needs of an individual.
CO4	Prescribe appropriate orthosis and prosthesis to the patients

Course Content

UNIT I

Rehabilitation: Conceptual framework of rehabilitation, Role of Physiotherapist in the rehabilitation teamRole of Rehab Nurse,Model of service delivery

UNIT II

Preventive aspects of disability, Epidemiology of disability, Legal Aspect in Disabilities, Govt and NGO participation in disability RCI

UNIT III

Socio-economic independency
Principles and methods of vocational and social rehabilitation, an outline of the principles and process of disability evaluation

UNIT IV

Orthotics & Prosthetics
Principles of Orthotics, Principles of prostheses, Prosthetics and orthotics used for various conditions, Prescription of prosthetics and orthotics

Text Books

- Sullivan, S. & Schmitz (2013). *Physical Rehabilitation – Assessment and Treatment*. F. A. Davis.
- Lusardi, M. M., Jorge, M., & Nielsen, C. C. (2013). *Orthotics and prosthetics in rehabilitation*. Elsevier Health Sciences.

The mapping of the PO/PSO/CO attainment is as follows:

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PSO 1	PSO 2	PSO 3
CO1	1	1	2	2	2	1	2	2	2	1	2
CO2	2	2	3	3	2	2	1	3	3	1	2
CO3	2	1	2	2	3	1	1	1	2	3	1
CO4	1	3	1	1	1	1	3	2	2	1	3
Average	1.5	1.75	2	2	2	1.25	1.75	2	2.25	1.5	2

The correlation levels are: "1" – Low Correlation, "2" – Medium Correlation, "3" – High Correlation and "-" indicates there is no correlation.

Semester: 4th
Subject Name: Advance physiotherapy techniques in musculoskeletal conditions
Subject Code: 715401

	L	T	P
Credits: 05	**5**	**0**	**0**

Course Outcomes: On successful completion of this course, the student will be able to

CO	Statement
CO 1	Grapple knowledge about the recent developments and innovations in the field of musculoskeletal physiotherapy.
CO 2	Become adept in using hi-tech equipments for providing physiotherapy treatment.
CO 3	Gain expertise in advocating manual therapy treatment to the patients.
CO 4	Design a rehabilitation protocol by inculcating advanced therapeutic techniques.

Course Content

UNIT I

Group therapies: Combined movement therapy, Back school therapy, Group exercises

UNIT II

Manual therapy: Myofascial release, Positional release technique, Muscle energy technique, Relaxation technique ,Massage therapy

UNIT III

Mobilization: Buttler mobilization, Mulligan, Cyriax and Maitland mobilization, McKenzie technique

UNIT IV

Ambulation: Transfer techniques, Wheelchair prescription and advanced skills, Hydrotherapy

Text Books

- Maitland, G. D. (1986). *Vertebral manipulation*. Elsevier Health Sciences.Muscle Energy Technique, Leon chaitow ,Churchill Livingstone.
- Chaitow, L. (2007). *Positional Release Techniques E-Book*. Elsevier health sciences.
- Hing, W., Hall, T., Rivett, D. A., Vicenzino, B., & Mulligan, B. (2014). *The Mulligan Concept of Manual Therapy-eBook: Textbook of Techniques*. Elsevier Health Sciences.

The mapping of the PO/PSO/CO attainment is as follows:

PO/PSO/CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	3	3	3	1	2	1	1	3	3	1
CO2	2	3	3	3	1	2	1	2	3	3	1
CO3	2	3	3	2	2	3	2	2	2	2	3
CO4	1	1	1	2	3	3	2	2	1	2	1
Average	2	2.5	2.5	2.5	1.75	2.5	1.5	1.75	2.25	2.5	1.5

The correlation levels are: "1" – Low Correlation, "2" – Medium Correlation, "3" – High Correlation and "-" indicates there is no correlation.

Semester: 4th
Subject Name: Physiotherapy management for vertebral disorders
Subject Code: 715402

	L	T	P
Credits: 05	**5**	**0**	**0**

Course Outcomes: On successful completion of this course, the student will be able to

CO	Statement
CO1	Learn about various spinal deformities
CO2	Develop skills to design and prescribe corrective exercises.
CO3	Identify vertebral fractures and the associated complications.
CO4	Plan and provide post operative rehabilitation programme.

Course Content

UNIT I

Congenital and acquired deformities: Congenital deformities – Torticollis, Sprengel shoulder, klippelfeil syndrome, spina bifida, Acquired deformities – scoliosis, lordosis, flat back, kyphosis

UNIT II

Inflammatory and infectious disorders: Inflammatory disorders – Ankylosing spondylitis, Infectious conditions – Osteomyelitis, pott's spine. Degenerative disorders – osteoarthritis, spondylolysis, spondylolisthesis, spondylosis

UNIT III

Soft tissue injuries: Whiplash injuries, Soft tissue injuries around the vertebral column, Spinal Cord injuries

UNIT IV

Fractures of the vertebras, Pre and post operative physiotherapy for spinal surgeries and instrumentation

Text Books

- Maheshwari, J., &Mhaskar, V. A. (2019). *Essential orthopaedics:(including clinical methods)*. Jaypee Brothers Medical Publishers.
- Brotzman, S. B., &Manske, R. C. (2011). *Clinical orthopaedic rehabilitation e-book: An evidence-based approach-expert consult*. Elsevier Health Sciences

The mapping of the PO/PSO/CO attainment is as follows:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	1	1	1	2	1	1	2	1	1	1
CO2	2	2	2	1	2	3	2	1	2	2	1
CO3	3	2	1	3	1	2	2	2	3	2	1
CO4	2	2	1	1	3	1	3	2	1	3	2
Average	2.5	1.75	1.25	1.5	2	1.75	2	1.75	1.75	2	1.25

The correlation levels are: "1" – Low Correlation, "2" – Medium Correlation, "3" – High Correlation and "-" indicates there is no correlation.

Semester: 4th

Subject Name: Advance physiotherapy techniques in musculoskeletal conditions - Lab

Subject Code: 715403

	L	T	P
Credits: 03	**0**	**0**	**6**

Course Outcomes: On successful completion of this course, the student will be able to

CO	Statement
CO1	Become skilled in using recently developed manual therapy techniques.
CO 2	Design and develop innovative rehabilitation equipments.
CO3	Provide training for posture and gait correction.
CO4	Demonstrate and teach appropriate techniques of various manual therapies.

Course Content

UNIT I

Group therapies – Practical: Combined movement therapy, Back school therapy, Group exercises

UNIT II

Manual therapy – Practical: Myofascial release, Positional release technique, Muscle energy technique, Relaxation technique, Massage therapy

UNIT III

Mobilization – Practical: Buttler mobilization, Mulligan, Cyriax and Maitland mobilization, McKenzie technique

UNIT IV

Gait training: Transfer techniques, Wheelchair prescription and advanced skills, Hydrotherapy

Text Books

- Maitland, G. D. (1986). *Vertebral manipulation*. Elsevier Health Sciences.Muscle Energy Technique, Leon chaitow ,Churchill Livingstone.
- Chaitow, L. (2007). *Positional Release Techniques E-Book*. Elsevier health sciences.
- Hing, W., Hall, T., Rivett, D. A., Vicenzino, B., & Mulligan, B. (2014). *The Mulligan Concept of Manual Therapy-eBook: Textbook of Techniques*. Elsevier Health Sciences.

The mapping of the PO/PSO/CO attainment is as follows:

PO/PSO/CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	3	3	3	1	2	1	1	3	3	1
CO2	2	3	3	3	1	2	1	2	3	3	1
CO3	2	3	3	2	2	3	2	2	2	2	3
CO4	1	1	1	2	3	3	2	2	1	2	1
Average	2	2.5	2.5	2.5	1.75	2.5	1.5	1.75	2.25	2.5	1.5

The correlation levels are: "1" – Low Correlation, "2" – Medium Correlation, "3" – High Correlation and "-" indicates there is no correlation.

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Semester: 4th
Subject Name: Dissertation
Subject Code: 715404

Credits: 06

Course Outcomes: On successful completion of this course, the student will be able to

CO	Statement
CO1	Undertake an independent research activity.
CO2	Plan and propose a research design for the research study.
CO3	Analyze and interpret the results of the collected data.
CO4	Become proficient in writing dissertation.

Course Content

- A candidate shall have dissertation for M.P.T - IV semester and must submit his/her synopsis and get it approved by the Head of Department on the recommendation of D.R.C. (Departmental Research Committee).

- The candidate has to face the Viva-Voce conducted by DRC.

The mapping of the PO/PSO/CO attainment is as follows:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	2	1	3	2	3	1	3	2	1	1
CO2	2	1	2	1	1	1	1	1	1	2	2
CO3	2	1	2	2	2	3	2	2	3	2	1
CO4	2	1	2	1	1	1	2	2	3	3	1
Average	2.25	1.25	1.75	1.75	1.5	2	1.5	2	2.25	2	1.25

The correlation levels are: "1" – Low Correlation, "2" – Medium Correlation, "3" – High Correlation and "-" indicates there is no correlation.

Annexure-4

ACADEMIC INSTURCTIONS

Attendance Requirements

A student shall have to attend 75% of the scheduled periods in each course in a semester; otherwise he / she shall not be allowed to appear in that course in the University examination and shall be detained in the course(s). The University may condone attendance shortage in special circumstances (as specified by the Guru Kashi University authorities). A student detained in the course(s) would be allowed to appear in the subsequent university examination(s) only on having completed the attendance in the program, when the program is offered in a regular semester(s) or otherwise as per the rules.

Assessment of a course

Each course shall be assessed out of 100 marks. The distribution of these 100 marks is given in subsequent sub sections (as applicable).

	Internal (50)					External (70)	Total
Components	**Attendance**	**Assignment**		**MST1**	**MST2**	**ETE**	
		A1	A2				
Weightage	10	10	10	30	30	50	
Average Weightage	10	10		10		50	100

Passing Criteria

The students have to pass both in internal and external examinations. The minimum passing marks to clear in examination is 40% of the total marks.