CURRICULUM

MASTERS IN MUSCULOSKELETAL PHYSICAL THERAPY

Fall 2020 and onward

KHYBER MEDICAL UNIVERSITY
Institute of Physical Medicine & Rehabilitation
Hayatabad, Peshawar

INTRODUCTION TO MASTER PROGRAM IN PHYSICAL THERAPY

Institute of Physical Medicine and Rehabilitation was established in Jan 2009. Initially a four year of BSPT (Bachelor of Physical Therapy Sciences) was offered, that later got changed in to five years of Doctor of Physical Therapy program in 2010.

Khyber Medical University realizes the need of highly qualified Physical Therapist both for KPK and Nationwide. It is proud to announce the program of Master in Physical Therapy in two disciplines, Musculoskeletal and Neurological Physiotherapy in 2012.

This program will provide physiotherapy graduates with advanced, specialized training in respective disciplines of physiotherapy. They will have a sound base of scientific knowledge and clinical skills required to critically evaluate and contribute to current research in the basic and applied sciences relevant to disorders of the musculoskeletal and neurological system.

This program has been designed to meet both national and international standards fulfilling criteria for further education and job opportunities. Both courses are designed to enable full time study over two years period.

PROGRAM MISSION

The MSPT Program is committed to produce professional practitioners and effective teachers to address complex musculoskeletal problems in dynamic educational and healthcare environments to serve the community.

AIM OF THE COURSE

To produce proficient physical therapists who are capable to deal in uncertain, complex and dynamic situations.

OBJECTIVES

By the end of this course, students of MSPT should be able to;

1. Apply knowledge to manage patient/client with complex musculoskeletal problems.
2. Communicate effectively with patients and their families regarding health-related conditions.
3. Effectively write and verbally communicate with health professional and other service providers.
4. Demonstrate advance theoretical concepts and principals relative to physical therapy practice.
5. Apply evidence based physical therapy practice under dynamic situations.
6. Develop effective teachers by introducing them to the concepts of educational psychology, curriculum development, assessment, teaching and learning.
7. Prepare research project and disseminate findings in form of reports and research articles.
8. Demonstrate ethical and professional practices in dynamic health care and educational environments.

Program Out-Comes

After completion of the program students will be able to;

1. Examine and provide Physical Therapy services to the patients having musculoskeletal and neurological disorder in their own discipline.
2. Function as a member of multidisciplinary rehabilitation team in disabled community.
3. Design education based and research oriented Physical Therapy practice.
4. Use communication skills verbally and in descriptive pattern to interact with patients and community.
5. Conduct their activities in a professional and ethical manner.
6. Develop lifelong learning and professional growth.
7. Describe problem in the Physical Therapy practice and understand their difficulties.
8. Design experiments, collect data, analyze and interpret results.

COURSES DESCRIPTION

SEMESTER	Course	NAME OF SUBJECT	CREDITS
FIRST	FIRST YEAR		
	MSK-701	Sports Biomechanics	3 (2+1)
	MSK-702	Musculoskeletal Disorders & Sports Injuries-I	3 (2+1)
	RSC-701	Biostatistics & Epidemiology	3 (2+1)
	MSK-703	Advance Physical Therapy Techniques (Musculoskeletal)-I	3 (2+1)
			12
SECOND	MSK-704	Musculoskeletal Disorders & Sports Injuries-II	3 (2+1)
	RSC-702	Research Methodology	3 (2+1)
	MSK-705	Advance Physical Therapy Techniques (Musculoskeletal)-II	3 (2+1)
			9
THIRD	SECOND YEAR		
	MSK-706	Clinical Placement-I	3(0-3)
	MSK-707	Clinical Placement-II	3(0-3)
			6
FOURTH	RSC-710	Research Thesis / Dissertation	6
			6
		TOTAL CREDITS	33

MASTERS IN MUSCULOSKELETAL PHYSICAL THERAPY

The course introduces the principles of assessment and treatment of the musculoskeletal disorders based on an approach that integrates scientific and biomechanical principles with basic clinical skills. This course is focusing on training for mobility, interacting with patients and health care teams while demonstrating safe and professional practice. Content includes pathophysiology of musculoskeletal disorder, study of joints, posture and gait abnormalities. Professional and ethical practice issues are expanded and integrated throughout the unit. Learning strategies include small group work, seminars, lectures, structured independent study units, clinical skills laboratories, tutorials and structured clinical sessions.

At the completion of this course, students will develop the following generic skills:

- Critical thinking, problem-solving and analytical skills
- Good written and verbal communication skills
- An ability to apply evidence-based knowledge and skills
- Appreciation of the importance of the team approach to problem solving
- A deeper understanding of the basic sciences and their integration with musculoskeletal Physical Therapy clinical practice
- A sound theoretical knowledge and understanding of conditions affecting the musculoskeletal system
- The anatomical rationale of the clinical tests used in differential diagnosis
- The ability to perform an appropriate subjective and physical examination, with development of suitable analytical skills to evaluate data obtained
- The ability to develop and implement a clinical management plan based on the interpretation of assessment findings
- The ability to monitor patient response in order to modify or plan treatment appropriately
- An awareness of patient safety at all times
- Knowledge of the role of other health care professionals involved in patient care

SEMESTER-I

MUSCULOSKELETAL PHYSICAL THERAPY

Course codes	Course title	Credit hours
MSK-701	Sports Biomechanics	3 (2+1)
MSK-702	Musculoskeletal Disorders & Sports Injuries-I	3 (2+1)
RSC-701	Biostatistics & Epidemiology	3 (2+1)
MSK-703	Advance Physical Therapy Techniques (Musculoskeletal)-I	3 (2+1)

MSK- 701 **SPORTS BIOMECHANICS** **3 (2+1)**

Objectives of the Course:

These course objectives are to develop understanding of;

1. General knowledge of the mechanical properties of biological materials.
2. Examination of the biomechanical aspects of joints.
3. Mechanics of movement applied to normal and pathological states.
4. Knowledge of the biomechanical techniques used to assess human movement.
5. Development of practical skills that will enable students to assess muscular function.

Course Contents:

- **Fundamental Principles**
  - Sports Medicine
  - Sports Injuries
  - Pain: Where Is It Coming From?
  - Beware: Conditions Masquerading as Sports Injuries
  - Biomechanics of Common Sporting Injuries
  - Principles of Injury Prevention
  - Recovery
  - Principles of Diagnosis: Clinical
  - Assessment
  - Principles of Diagnosis: Investigations including Imaging
  - Treatments Used for Musculoskeletal
  - Conditions: More Choices and More Evidence
  - Core Stability
  - Principles of Rehabilitation
- **Regional Problems**
  - Sports Concussion
  - Headache
  - Facial Injuries
  - Neck Pain
  - Shoulder Pain
  - Elbow and Arm Pain
  - Wrist, Hand and Finger Injuries
  - Thoracic and Chest Pain
  - Low Back Pain
  - Buttock Pain
  - Acute Hip and Groin Pain
  - Longstanding Groin Pain

    - Anterior Thigh Pain
    - Posterior Thigh Pain
    - Acute Knee Injuries
    - Anterior Knee Pain
    - Lateral, Medial and Posterior Knee Pain
    - Shin Pain
    - Calf Pain
    - Pain in the Achilles Region
    - Acute Ankle Injuries
    - Ankle Pain
    - Foot Pain
    - Patient with Longstanding Symptoms
- **Part C Enhancing Sport Performance**
    - Maximizing Sporting Performance
    - Nutrition
    - Maximizing Sporting Performance
    - To Use or Not to Use Supplements?
    - Maximizing Sporting Performance
    - Psychology Principles for Clinicians

Recommended Readings:

- Basic Biomechanics Susan Hall McGraw-Hill Education, 22-Jun-2011
- Introductory Biomechanics Andrew Kerr – 2010
- Sports Biomechanics: The Basics: Optimizing Human Performance Anthony J. Blazevich – 2013
- Whittle, M.W. (2012) 5th ed. Gait Analysis: An Introduction. Oxford: Butterworth Heinemann Ltd.
- Enoka, R.M. (2008). Neuromechanical Basis of Kinesiology (4th ed.). Champaign, Illinois: Human Kinetics Rehabilitation.
- Joint Structure and Function: A Comprehensive Analysis, 5th edition By Pamela K Levangie, Cynthia C Norkin-2011

Journals:

- International journal of biomechanics
- Journal of athletic training
- Journal of sport sciences
- Journal of orthopedics and sports physical therapy.
- Journal of Applied Biomechanics

MSK- 702 MUSCULOSKELETAL DISORDERS & SPORTS INJURIES-1 3(2+1)

Aims of the course:

This course aims to discuss the common musculoskeletal disorders and sports injuries seen in acute care, private practice, rehabilitation, and other community settings. It also aims to make postgraduate Physical Therapy students skillful in the field of musculoskeletal Physical Therapy.

Objective:

On completion of the study of this subject the student should be able to

- Correlate the clinical manifestations to the organ of dysfunction of the musculoskeletal system
- To understand the Conservative & Surgical management of the musculoskeletal conditions as relevant to physiotherapy.

Course contents:

Section-1: Introduction

- Introduction to rehabilitation in musculoskeletal disorders & sports injuries

Section-2: Shoulder Region

- Assessment of shoulder girdle
- **Common Disorders:** Impingement Syndrome, Acute Bursitis, Glenohumeral Instability, Bicipital tendinitis/Tendinopathy, Adhesive Capsulitis, Thoracic Outlet Syndrome, ACJ Sprain & Degeneration, STJ Sprain & Degeneration, Fractures around Shoulder Joint

Section-3: Elbow and Forearm Region:

- Assessment of Elbow joint
- **Common Disorders:** Tennis Elbow, Golfer's Elbow, Posterior tennis elbow, Medial Collateral Ligament injury, Little leaguer's elbow, Internal derangement, Post immobilization Capsular Tightness, Radial Head Subluxation, Cubital Tunnel Syndrome, Pronator Syndrome, Radial Tunnel Syndrome

Section-4: Wrist and Hand Region:

- Assessment of wrist and hand
- **Common Disorders:** Carpal Tunnel Syndrome, Wrist Sprain, Ulnar Collateral Ligament Sprain, De Quervain's Syndrome, Trigger Finger, Mallet Finger, Boutonniere Deformity, Dupuytren's Contracture, Colles's Fracture, Secondary Osteoarthritis of the Thumb, Scaphoid Fracture, Stiff Hand.

Section-5: Cervical Spine

- Assessment of the cervical spine
- **Common Disorders:** Acceleration Injury, acute locking of cervical spine, Cervical Instability, cervical Disk dysfunction, cervical zygapophyseal joint pain, cervical spondylosis, cervical Headaches, Cervical Postural Syndrome.

Section-6: Temporomandibular Joint (TMJ)

- Assessment of Temporomandibular Joint
- **Disorders:** TMJ Dysfunction Syndrome, Hypermobility, osteoarthritis, Rheumatoid Arthritis, Trauma and Disorders of Limitation

Section-7: Physical Therapy Management of Common Fractures and Joint Replacement (upper Limb)

- **Common fractures:**
    - Shoulder joint fractures**,** Elbow fractures**,** Wrist and Hand joint fractures
- **Joint Replacement:**
    - Shoulder Joint Replacement
    - Orientation and General principles of Orthopedic surgery-
    - Arthrodesis
    - Osteotomy
    - Arthroplasty
    - Bone grafting
    - Internal and external fixations
    - Distraction and limb reconstruction
    - Correction of bone deformities and joint contractures.
    - Tendon transfers
    - Nerve suturing and grafting.

<u>Recommended Reading</u>

- The Hand: Anatomy, Examination, and Diagnosis Ghazi M. Rayan, Edward Akelman - 2012
- The Athlete's Shoulder, 2e by James R. Andrews MD, Kevin E. Wilk PT DPT and Michael M. Reinold DPT ATC CSCS (Nov 13, 2008)
- Joint Mobilization/Manipulation Extremity and Spinal Techniques, 2e by Susan L. Edmond PT DSC OCS (Jun 2, 2006)
- Musculoskeletal Interventions: Techniques for Therapeutic Exercise by Michael Voight, Barbara Hoogenboom and William Prentice 2014

- Manual Mobilization of the Joints - The Extremities 7th Edition (608-7) by Freddy M Kaltenborn and Eileen Vollowitz (Aug 29, 2011)
- Mobilization Notes: A Rehabilitation Specialist's Pocket Guide (Davis's Notes) by Christopher H. Wise PT MS OCS FAAOMPT MTC ATC and Dawn Gulick PhD PT ATC CSCS (Sep 28, 2009)
- Manual Mobilization of the Joints: Vol I The Extremities by Freddy M. Kaltenborn, Olaf Evjenth, Traudi Baldauf Kaltenborn and Dennis Morgan (2003)

Journals:

- Journal of Orthopedic & Sports Physical Therapy
- Formosan Journal of Musculoskeletal Disorders
- British Journal of Sports Medicine
- Musculoskeletal disorders journal
- Journal of manual and manipulative therapy

RSC 701 **BIOSTATISTICS & EPIDEMIOLOGY** **3 (2+1)**

Aims of the course:

This course will focus on Biostatistical analysis of research articles in the field of Physical Therapy

Objective:

On completion of the study of this subject the student should be able to:

- Enumerate the steps in Physiotherapy research process
- Acquire skills of reviewing literature, formulating a hypothesis, collect data, writing research proposal etc
- Describe the importance & use of biostatistics for research work

Contents:

Following are the topics to be included but not limited to:

1. Biostatistics

- Introduction
- Definition
- Types
- Application in Physiotherapy

2. Data

- Definition
- Types
- Presentation
- Collection methods

3. Measures of central value

- Arithmetic mean, median, mode. Relationship between them
- Partitioned values- Quatertiles, Deciles, Percentiles
- Graphical determination

4. Measures of Dispersion

- Range
- Mean Deviation
- Standard Deviation

5. Normal Distribution Curve

- Properties of normal distribution
- Standard normal distribution
- Transformation of normal random variables.
- Inverse transformation
- Normal approximation of Bioaxial distribution.

6. Correlation analysis

- Bivariate distribution
- Scatter Diagram
- Coefficient of correlation

- Calculation & interpretation of correlation coefficient
- T-test, Z-test, P-value

7. Regression analysis

- Lines of regression
- Calculation of Regression coefficient

8. Sampling

- Methods of Sampling
- Sampling distribution
- Standard error
- Types I & II error

9. Probability (in Brief)

10. Hypothesis Testing

- Null Hypothesis
- Alternative hypothesis
- Acceptance & rejection of null Hypothesis
- Level of significance

11. Parametric & non-Parametric tests

- Chi square test
- Mann-Whitney U test
- Wilcoxon Signed test
- Kruskal-Wallis test
- Friedman test
- T-test/student T test
- Analysis of variance (ANOVA)
- Regression analysis

12. Introduction to SPSS

Recommended reading

- Fundamentals of Biostatistics by Bernard Rosner (Aug 19, 2010)
- Biostatistics: A Foundation for Analysis in the Health Sciences (Wiley Series in Probability and Statistics) by Wayne W. Daniel (Dec 31, 2008)
- Biostatistics: A Foundation for Analysis in the Health Sciences (Wiley Series in Probability and Statistics) by Wayne W. Daniel and Chad L. Cross (Jan 9, 2013)
- Leon Gordis, Epidemiology, 2013

Journals:

- International journal of biostatistics

MSK- 703 ADVANCE PHYSICAL THERAPY TECHNIQUES (MUSCULOSKELETAL)-1 3(2+1)

Aims of the course:

This course will focus on the decision-making and application of advance Physical Therapy techniques in musculoskeletal disorders.

Objective:

On completion of the study of this subject the student should be able to:

- To formulate a rationalized treatment plan for the patient
- Implement physiotherapy treatment
- Compare & contrast the outcome of various treatment approaches
- Document the status to the patient as written records

Course Contents:

Section 1: Introduction to the Manual Therapy

- History of Joint Mobilization Techniques
- General rules of Joint mobilization/manipulation techniques
- Safety Guidelines and concept of irritability

Section 2: Maitland Techniques

- Evaluation and differential diagnosis
- Principles of techniques
- Selection of techniques
- Application of techniques
- Mobilization/ Manipulation of Peripheral and vertebral joints (region wise)

Section 3: Muscle energy techniques

- An introduction to muscle energy techniques
- Patterns of function and dysfunction
- How to use MET
- Sequential assessment and MET treatment of main postural muscles
- Manual resistance techniques in rehabilitation
- MET and the treatment of joints
- Integrated neuromuscular inhibition technique (INIT)
- Results of MET

Section 4: McKenzie techniques

- Introduction
- Postural syndrome, dysfunction syndrome and derangement syndrome
- Mechanical diagnosis and management

- Practical sessions

Section 5: Mulligan Techniques

- Introduction
- Types of techniques:
  - NAGs, SNAGs, SMWM
- Practical sessions

Recommended Reading

- Musculoskeletal Interventions: Techniques for Therapeutic Exercise by Michael Voight, Barbara Hoogenboom and William Prentice 2014
- Joint Mobilization/Manipul... Extremity and Spinal Techniques, 2e by Susan L. Edmond PT DSC OCS (Jun 2, 2006)
- Manual Mobilization of the Joints - The Extremities 7th Edition (608-7) by Freddy M Kaltenborn and Eileen Vollowitz (Aug 29, 2011)
- Mobilization Notes: A Rehabilitation Specialist's Pocket Guide (Davis's Notes) by Christopher H. Wise PT MS OCS FAAOMPT MTC ATC and Dawn Gulick PhD PT ATC CSCS (Sep 28, 2009)
- Manual Mobilization of the Joints: Vol I The Extremities by Freddy M. Kaltenborn, Olaf Evjenth, Traudi Baldauf Kaltenborn and Dennis Morgan (2003)

Journals:

- Journal of Orthopaedic & Sports Physical Therapy
- Formosan Journal of Musculoskeletal Disorders
- British Journal of Sports Medicine
- Musculoskeletal disorders journal
- Journal of manual and manipulative therapy

Semester II

Course codes	Course title	Credit hours
MSK-711	Musculoskeletal Disorders & Sports Injuries-II	3 (2+1)
RSC-702	Research Methodology	3 (2+1)
MSK-713	Advance Physical Therapy Techniques (Musculoskeletal)-II	3 (2+1)

MSK 711 MUSCULOSKELETAL DISORDERS & SPORTS INJURIES-II 3(2+1)

Aims of the course:

This course aims to discuss the common musculoskeletal disorders and sports injuries seen in acute care, private practice, rehabilitation, and other community settings. It also aims to make postgraduate Physical Therapy students skillful in the field of musculoskeletal Physical Therapy.

Objective:

On completion of the study of this subject the student should be able to

- Correlate the clinical manifestations to the organ of dysfunction of the Musculoskeletal system
- To understand the conservative & surgical management of the Musculoskeletal conditions as relevant to physiotherapy.

Course contents

Section-1: Hip Region

- Assessment of Hip
- DISORDERS:
  - Osteoarthritis
  - Capsular Strain
  - Trochanteric Bursitis
  - Illiopectineal Bursitis
  - Ischiogluteal bursitis
  - Muscle Strains
  - Labral Tear
  - Stress Fracture of the Neck of Femur
  - Nerve Entrapments in the Groin

Section-2: Knee Region

- Assessment of knee (Tibio-femoral & Patello-femoral joints)
- Disorders**:**
  - Ligamentous Injuries (MCL, ACL & PCL Injuries)
  - Meniscal Tear
  - Patellar Tracking Dysfunction
  - Quadriceps Contusion
  - Plica Syndrome
  - Patellar Tendonitis
  - Osgood-Schlatter Disease
  - Iliotibial Band Friction Syndrome
  - Hamstring Insertional Tendonitis
  - Popliteal Muscle Strain

- Tennis Leg
- Osteoarthritis
- Posterior lateral Knee Pain.

Section-3: Ankle and Foot Regions

- Assessment of ankle and foot
- Disorders**:**
  - Shin splint
  - Medial tibial stress syndrome
  - Posterior tibial tendonitis
  - Tibial stress fracture
  - Chronic exceptional compartment syndromes
  - Plantar fasciitis
  - Ankle sprain
  - Cuboid dysfunction
  - Metatarsalgia
  - Abnormal foot pronation
  - Abnormal foot supination

Section-4: Thoracic Spine

- Assessment of thoracic spine
- Disorders
  - Thoracic Disk Prolapse
  - Maigne Theory of Minor Intervertebral Derangement
  - Thoracic Pain of Lower Cervical Origin
  - Maigne Theory of Thoracic Pain of Thoracic Origin
  - Thoracic Hypo mobility Syndrome
  - Thoracic Hypermobility Syndrome
  - Upper Thoracic Spinal Syndrome
  - Mid thoracic & Costovertebral Disorder
  - Lower Thoracic Spine & Thoracolumbar Junction Syndrome
  - Thoracic Derangement Syndrome of McKenzie
  - Postural Disorders
  - Rib Disorders Kyphosis
  - Osteoporosis

Section-5: Lumbar Spine

- Assessment of Lumber Spine
- Common Disorders**:**
  - Intervertebral Disk Lesions
  - Acute Mechanical Derangement

- Hypo mobility disorders
- segmental intervertebral instability
- lumber spondylosis & spondylolisthesis
- Chronic Low Back Pain

Section-6: Sacroiliac Joint and Lumbo-Pelvic Region

- Assessment and Examination
- Common Disorders:
  - Sacroiliac joint lesions - Hypo mobility Lesions, Hypermobility Lesions, Degenerative Disorders, Osteitis Condensans Ilii)
  - Pubic Symphysis Disorders
  - Coccygeal Pain

Section-7: Physical Therapy Management of Common Fractures and Joint Replacement (Lower Limb)

- Operations on joints
- Meniscectomy, laminectomy, patellectomy, total knee and hip replacement
- Malformations of spine & spinal cord
- Surgeries for disc disorders
- Amputations for upper and lower extremities.
- Surgical management of fractures & other injuries
- Orthopedic implants- designs, materials, indications, post-operative assessment

Section 8: Prosthesis and Orthosis

- Ankle orthosis, Knee orthosis, Hip orthosis
- Wrist orthosis, Elbow orthosis, Shoulder orthosis
- Above knee amputations and above knee prosthesis
- Below knee amputations and below knee prosthesis
- Foot amputation and Prosthesis

Recommended Reading

- The Hand: Anatomy, Examination, and Diagnosis Ghazi M. Rayan, Edward Akelman - 2012
- The Athlete's Shoulder, 2e by James R. Andrews MD, Kevin E. Wilk PT DPT and Michael M. Reinold DPT ATC CSCS (Nov 13, 2008)
- Joint Mobilization/Manipulation Extremity and Spinal Techniques, 2e by Susan L. Edmond PT DSC OCS (Jun 2, 2006)

- Musculoskeletal Interventions: Techniques for Therapeutic Exercise by Michael Voight, Barbara Hoogenboom and William Prentice 2014
- Manual Mobilization of the Joints - The Extremities 7th Edition (608-7) by Freddy M Kaltenborn and Eileen Vollowitz (Aug 29, 2011)
- Mobilization Notes: A Rehabilitation Specialist's Pocket Guide (Davis's Notes) by Christopher H. Wise PT MS OCS FAAOMPT MTC ATC and Dawn Gulick PhD PT ATC CSCS (Sep 28, 2009)
- Manual Mobilization of the Joints: Vol I The Extremities by Freddy M. Kaltenborn, Olaf Evjenth, Traudi Baldauf Kaltenborn and Dennis Morgan (2003)

Journals:

- Journal of Orthopedic & Sports Physical Therapy
- Formosan Journal of Musculoskeletal Disorders
- British Journal of Sports Medicine
- Musculoskeletal disorders journal
- Journal of manual and manipulative therapy

RSC 702 **RESEARCH METHODOLOGY** **3(2+1)**

Objective:

On completion of the study of this subject the student should be able to:

- Enumerate the steps in Physiotherapy research process
- Acquire skills of reviewing literature, formulating a hypothesis, collect data, writing research proposal etc
- Describe the importance & use of biostatistics for research work

Course Content:

Following are the topics to be included but not limited to:

1. Research in Physiotherapy

- Introduction
- Research for Physiotherapist: Why? How? And When?
- Research – Definition, concept, purpose, approaches
- Internet sites for Physiotherapist

2. Research Fundamentals

- Define measurement
- Measurement framework
- Scales of measurement
- Pilot Study
- Types of variables
- Reliability & Validity
- Drawing Tables, graphs, master chart etc

3. Writing a Research Proposal, Critiquing a research article

- Defining a problem
- Review of Literature
- Formulating a question, Operational Definition
- Inclusion & Exclusion criteria
- Forming groups
- Data collection & analysis
- Results, Interpretation, conclusion, discussion
- Informed Consent
- Limitations

4. Research Design

Principle of Designing

- Design, instrumentation & analysis for qualitative research
- Design, instrumentation & analysis for quantitative research
- Design, instrumentation & analysis for quasi-experimental research
- Design models utilized in Physiotherapy

5. Research Ethics

- Importance of Ethics in Research

- Main ethical issues in human subjects' research
- Main ethical principles that govern research with human subjects
- Components of an ethically valid informed consent for research

Recommended Readings:

- Leon Gordis, Epidemiology, 2013
- Introduction to Health Research Methods by Kathryn H. Jacobsen (Mar 23, 2011)
- DePoy E. and Gitlin L.N. (2011) Introduction to Research. Understanding and Applying Multiple Strategies.
- Guide to Evidence-Based Physical Therapist Practice, Dianne V. Jewell – 2014 Jones & Bartlett

Journals:

- International journal of social research methodology
- Physiotherapy research international journal

MSK 713 ADVANCE PHYSICAL THERAPY TECHNIQUES (MUSCULOSKELETAL)-II 3(2+1)

Aims of the course:

This course will focus on the decision-making and application of advance Physical Therapy techniques in musculoskeletal disorders.

Objective:

On completion of the study of this subject the student should be able to

- To formulate a rationalized treatment plan for the patient
- Implement physiotherapy treatment
- Compare & contrast the outcome of various treatment approaches
- Document the status to the patient as written records

Contents:

Section 1: Hypermobility Treatment

- Regional exercises
- Segmental strengthening techniques
- self-stabilization exercises

Section 2: Some Special Treatment techniques

- Soft tissue manipulation
- Myofascial Trigger point therapy
- Neurodynamic
- Relaxation techniques
- Dry needling
- PNF

Section 3: Taping Techniques

- Basic Rules Types of taping
- Different taping techniques
- Practical sessions of taping

Recommended Reading

- Joint Mobilization/Manipul... Extremity and Spinal Techniques, 2e by Susan L. Edmond PT DSC OCS (Jun 2, 2006)
- Manual Mobilization of the Joints - The Extremities 7th Edition (608-7) by Freddy M Kaltenborn and Eileen Vollowitz (Aug 29, 2011)
- Mobilization Notes: A Rehabilitation Specialist's Pocket Guide (Davis's Notes) by Christopher H. Wise PT MS OCS FAAOMPT MTC ATC and Dawn Gulick PhD PT ATC CSCS (Sep 28, 2009)

- Manual Mobilization of the Joints: Vol I The Extremities by Freddy M. Kaltenborn, Olaf Evjenth, Traudi Baldauf Kaltenborn and Dennis Morgan (2003)
- Musculoskeletal Interventions: Techniques for Therapeutic Exercise by Michael Voight, Barbara Hoogenboom and William Prentice (Dec 5, 2006)

Journals:

- Journal of Orthopedic & Sports Physical Therapy
- Formosan Journal of Musculoskeletal Disorders
- British Journal of Sports Medicine
- Musculoskeletal disorders journal
- Journal of manual and manipulative therapy

Semester III

Course codes	Course title	Credit hours
MSK-714	Clinical Placement-I	3(0-3)
MSK-715	Clinical Placement-II	3(0-3)

MSK714 CLINICAL PRACTICE (0+3)

MSK715 CLINICAL PRACTICE (0+3)

COURSE DESCRIPTION:

During this supervised clinical practice, students are responsible for successful execution of examination, evaluation, and interventions relating to musculoskeletal disorders. Students become familiar with performance of these skills in all settings (inpatient and outpatient) as well as on all types of conditions (surgical, non-surgical, pediatric and geriatric).
Students learn to objectively perform these skills under the supervision of trained physical therapists. Students are required to keep a performance record of all listed competencies and successfully perform on real patients during the final evaluation of the course.

COURSE OBJECTIVES:
On completion of the study of this subject the student should be able to

1. Perform a thorough physiotherapy assessment & plan Individualized goals for musculoskeletal Conditions covered in the second year.
2. Apply Effective physiotherapy treatment techniques, compare & Contrast the efficacy of different treatment approaches
3. Communicate the status to the patient with other rehabilitation team members & patient's attendants Practical Training in the Physiotherapy assessment & treatment for conditions covered in the second year.

COURSE CONTENT:

PHYSICAL THERAPY ASSESSMENT:

1. Subjective examination

- Past and current patient/client history
- Demographics
- General health status
- Chief complaint
- Medications

- Medical/surgical history
- Social history
- Present and pre-morbid functional status/activity
- Social/health habits
- Living environment
- Employment
- Growth and development
- Lab values
- Imaging
- Consultations
- Documentation of the history

2. Physical Examination

- Observation
- inspection
- Active Movements
- Passive Movements
  - Passive physiological movements
  - Joint play
- Resisted isometric movements
- Neuromuscular tests
- Palpation
- Provocation tests
- Functional assessment
- Special tests
- Diagnostic imaging

3. Clinical decision making & data collection

- Treatment Planning
- Guides to correlation and interpretation
- Nature of the lesion
- Extent of the lesion
- Setting goals and priorities

4. Concepts of management

- Rehabilitation
- Treatment of patients with physical disorders
- Evaluation of treatment program

Recommended books:

- Musculoskeletal Interventions: Techniques for Therapeutic Exercise by Michael Voight, Barbara Hoogenboom and William Prentice (Dec 5, 2006)
- Joint Mobilization/Manipul... Extremity and Spinal Techniques, 2e by Susan L. Edmond PT DSC OCS (Jun 2, 2006)
- Manual Mobilization of the Joints - The Extremities 7th Edition (608-7) by Freddy M Kaltenborn and Eileen Vollowitz (Aug 29, 2011)
- Mobilization Notes: A Rehabilitation Specialist's Pocket Guide (Davis's Notes) by Christopher H. Wise PT MS OCS FAAOMPT MTC ATC and Dawn Gulick PhD PT ATC CSCS (Sep 28, 2009)
- Manual Mobilization of the Joints: Vol I The Extremities by Freddy M. Kaltenborn, Olaf Evjenth, Traudi Baldauf Kaltenborn and Dennis Morgan (2003)

Journals:

- Journal of Orthopedic & Sports Physical Therapy
- Formosan Journal of Musculoskeletal Disorders
- British Journal of Sports Medicine
- Musculoskeletal disorders journal
- Journal of manual and manipulative therapy
- Indian Journal of Physical Medicine and Rehabilitation
- Journal of Rehabilitation Research and Development
- Rehabilitation Research and Practice
- BMC Cardiovascular Disorders
- International Journal of Exercise Science
- Journal of Exercise Physiology
- Archives of Exercise in Health and Disease
- Arthritis Research and Therapy
- BMC Musculoskeletal Disorders
- Paediatric Rheumatology
- Sports Medicine, Arthroscopy, Rehabilitation, Therapy and Technology
- European Journal of Physical and Rehabilitation Medicine
- Journal of Physical Therapy Science

The list of recommended books and journals are suggestions and must be taken as a helpful guide for reading. Students are encouraged to refer to other books and study material and not to limit themselves to the study material listed above.

Semester IV

Course codes	Course title	Credit hours
RSC 710	Research Thesis / Dissertation	6

RSC 710 DISSERTATION 6

Aims of the Study Unit

To apply the theoretical and practical knowledge gained in the course to the design, implementation and evaluation of Physical Therapy rehabilitation programs, using both individual and group models. Practical experience with all aspects of case management, including working as part of the rehabilitation team, report writing, professional ethics and exposure to the public and private health systems.

Content of the Study Unit

The dissertation will normally be 6,000 and 10, 000 words in length. 10000 words is the maximum word length permissible. Concise appendices are permissible, however, all information essential to the coherence of the dissertation needs to be located outside the appendices, within the main body of the dissertation.

The dissertation will normally contain the following elements;

- An abstract
- Clear statement of research questions and aims
- Background chapter including review of the pertinent literature and relevance of the study to the focus of the student's M.S Physical Therapy course
- Method section (with due reference to methodological issues, methods of data collection and analysis, sampling, critique and ethical consideration)
- Findings
- Discussion
- Conclusion
- Implication and recommendations (where applicable)

Recommended Reading

- The Essential Guide to Doing Your Research Project by Zina O'Leary (Nov 25, 2009)
- Doing Your Research Project (Open Up Study Skills) by Judith Bell (May 1, 2010)
- A Beginner's Guide to Doing Your Education Research Project by Mike Lambert (Sep 5, 2012)
- A Manual for Writers of Research Papers, Theses, and Dissertations, Eighth Edition: Chicago Style for Students... by Kate L. Turabian, Wayne C. Booth, Gregory G. Colomb and Joseph M. Williams (Mar 28, 2013)

Assessment Criteria

- Synopsis writing and defense in Institutional Review Committee (IRC)
- Synopsis defense in IRB
- Synopsis defense in ASRB
- Research WORK and THESIS writing
- Submission of Research Thesis / Dissertation