



Jagannath University

Bahadurgarh - NCR

MASTER OF PHYSIOTHERAPY (M.P.T.)

**Specialization: Neurology, Musculoskeletal, Sports,
Cardiopulmonary and Obstetrics & Gynecology**

Detailed Scheme and Syllabus

(w.e.f.- 2020)

L= LECTURE
T= TUTORIAL
P=PRACTICAL
FW/SW = Field Work/ Self Work

MASTERS OF PHYSIOTHERAPY (MPT)

COURSE INSTRUCTION

COURSES/SUBJECT		SUBJECT CODE	TEACHING HOURS	L-T-P-FW/SW	TOTAL YEARLY CREDITS *
MPT 1st Year					
	OVERVIEW OF HUMAN SCIENCES	MP 101	120	3-0-0	6
	PHYSIOTHERAPY METHOD-I	MP 102	120	3-0-0	6
	PHYSIOTHERAPY METHOD-II	MP 103	120	3-0-0	6
	PROFESSIONAL ENHANCING STUDIES	MP 104	80	2-0-0	4
	EXERCISE PHYSIOLOGY	MP 105	80	2-0-0	4
	PRACTICAL	MP 106	480	0-0-12	12
	CLINICAL	MP 107	200	0-0-5	5
	Total transcript hours		1200		43
MPT 2nd Year (Neurology)					
	PHYSICAL THERAPY IN NEUROLOGICAL CONDITIONS –I	MPN-201	120	3-0-0	6
	PHYSICAL THERAPY IN NEUROLOGICAL CONDITIONS –II	MPN-202	120	3-0-0	6
	BIO-ENGINEERING & REHABILITATION PRINCIPLES	MP-203	80	2-0-0	4
	ASSESSMENT & EVALUATION IN NEUROLOGY	MPN-204	80	2-0-0	4
	PRACTICAL	MPN-205	480	0-0-12	12
	DISSERTATION (Based on project work)	MPN-206	--	0-0-0-6	6
	CLINICAL	MP- 207	320	0-0-8	8
	Total transcript hours		1200		46
MPT 2nd Year (Musculoskeletal)					
	PHYSIOTHERAPY IN MUSCULOSKELETAL CONDITIONS –I	MPO-201	120	3-0-0	6
	PHYSIOTHERAPY IN MUSCULOSKELETAL	MPO-202 2	120	3-0-0	6

	CONDITIONS –II				
	BIO-ENGINEERING & REHABILITATION PRINCIPLES	MP-203	80	2-0-0	4
	ASSESSMENT & EVALUATION IN MUSCULOSKELETAL CONDITIONS	MPO-204	80	2-0-0	4
	PRACTICAL	MPO-205	480	0-0-12	12
	DISSERTATION (Based on project work)	MPO-206	--	0-0-0-6	6
	CLINICAL	MP- 207	320	0-0-8	8
	Total transcript hours		1200		46
MPT 2nd Year (Sports)					
	PHYSIOTHERAPY IN SPORTS CONDITION-I	MPS-201	120	3-0-0	6
	PHYSIOTHERAPY IN SPORTS CONDITIONS-II	MPS-202	120	3-0-0	6
	SPORTS PSYCHOLOGY	MPS-203	80	2-0-0	4
	ASSESSMENT & EVALUATION IN SPORTS CONDITIONS	MPS-204	80	2-0-0	4
	PRACTICAL	MPS-205	480	0-0-12	12
	DISSERTATION (Based on project work)	MPS-206	--	0-0-0-6	6
	CLINICAL	MP- 207	320	0-0-8	8
	Total transcript hours		1200		46
MPT 2nd Year (Cardiopulmonary)					
	PHYSIOTHERAPY IN CARDIOPULMONARY CONDITION-I	MPC-201	120	3-0-0	6
	PHYSIOTHERAPY IN CARDIOPULMONARY CONDITIONS-II	MPC-202	120	3-0-0	6
	PHYSIOTHERAPY IN ICU	MPC-203	80	2-0-0	4
	ASSESSMENT & EVALUATION IN CARDIOPULMONARY CONDITIONS	MPC-204	80	2-0-0	4
	PRACTICAL	MPC-205	480	0-0-12	12
	DISSERTATION (Based on project work)	MPC-206	--	0-0-0-6	6
	CLINICAL	MP- 207	320	0-0-8	8
	Total transcript hours		1200		46

MPT 2nd Year (Obstetrics & Gynaecology)					
	PHYSIOTHERAPY IN OBSTETRICS & GYNAECOLOGY CONDITION-I	MPG- 201	120	3-0-0	6
	PHYSIOTHERAPY IN OBSTETRICS & GYNAECOLOGY CONDITIONS-II	MPG- 202	120	3-0-0	6
	BIO-ENGINEERING & REHABILITATION PRINCIPLES	MP- 203	80	2-0-0	4
	ASSESSMENT & EVALUATION IN OBSTETRICS & GYNAECOLOGY CONDITIONS	MPG- 204	80	2-0-0	4
	PRACTICAL	MPG- 205	480	0-0-12	12
	DISSERTATION (Based on project work)	MPG- 206	--	0-0-0-6	6
	CLINICAL	MP- 207	320	0-0-8	8
	Total transcript hours		1200		46

DURATION OF COURSE:

MPT course will be a full time course.

Duration will be two years.

This course shall be divided into two professional examinations namely MPT Part-1 at the end of first academic year, MPT Part-II at the end of second academic year.

EXAMINATION:

There shall be an annual university examination at the end of each academic year in the form of theory papers and practical examinations. The candidate shall be required to appear in every subject as specified in the course structure for each year.

DURATION OF EXAMINATION:

Each theory paper shall be of 3 hrs. duration.

SCHEME OF EXAMINATION

MPT 1ST YEAR (Common for all)

S.No	Subjects	Code	Theory / practical		Duration of exam	Maximum Marks
			university	internal		Total
1.	Overview of Human Sciences	MP-101	70	30	3 Hrs	100
2.	Physiotherapy Methods - I (Exercise Therapy, Electro Therapy, Biomechanics & Bio. Engineering	MP – 102	70	30	3 Hrs	100
3.	Physiotherapy Methods - II (Manual Therapy, MET, Myofascial Release, LASERS, EMG, Micro Current, Radiology & Diagnostic Studies. Lab (Pathology), Matrix, Kinesio Taping, Pilates	MP – 103	70	30	3 Hrs	100
4.	Professional enhancing studies (Research & methodology, ethics, Educational Technology & Medico Legal aspects)	MP – 104	70	30	3 Hrs	100
5.	Exercise Physiology	MP- 105	70	30	3 Hrs	100
6.	Practical	MP -106	70	30	3 Hrs	100
7.	Clinical (VIVA VOCE)	MP- 107	70	30	3 Hrs	100
	Total					700

MPT 2ND YEAR
MPT
(NEUROLOGY)

S.No	Subjects	Code	Theory / practical		Duration of exam	Maximum marks
			university	Internal		Total
1.	Physiotherapy in Neurological conditions -I	MPN - 201	70	30	3 Hrs	100
2.	Physiotherapy in Neurological conditions -II	MPN – 202	70	30	3 Hrs	100
3.	Biomedical Engineering and Rehabilitation Principles	MP – 203	70	30	3 Hrs	100
4.	Assessment and Evaluation in Neurology	MPN – 204	70	30	3 Hrs	100
5.	Practical	MPN 205	70	30	3 Hrs	100
6.	Dissertation(Based on Project Work)	MPN 206	70	30	3 Hrs	100
7.	Clinical (VIVA VOCE)	MP- 207	70	30	3 Hrs	100
	Total					700

MPT 2ND YEAR
MPT (MUSCULOSKELETAL)

S.No	Subjects	Code	Theory / practical		Duration of exam	Maximum marks
			university	internal		Total
1.	Physiotherapy in Musculoskeletal conditions –I	MPO-201	70	30	3 Hrs	100
2.	Physiotherapy in Musculoskeletal conditions –II	MPO – 202	70	30	3 Hrs	100
3.	Biomedical Engineering and Rehabilitation Principles	MP – 203	70	30	3 Hrs	100
4.	Assessment and Evaluation in Musculoskeletal conditions	MPO – 204	70	30	3 Hrs	100
5.	Practical	MPO - 205	70	30	3 Hrs	100
6.	Dissertation(Based on Project Work)	MPO - 206	70	30	3 Hrs	100
7.	Clinical (VIVA VOCE)	MP- 207	70	30	3 Hrs	100
	Total					700

MPT 2ND YEAR
MPT (SPORTS)

S.No	Subjects	Code	Theory / practical		Duration of exam	Maximum marks	
			university	Internal		Total	
1.	Physiotherapy in Sports conditions –I	MPS-201	70	30	3 Hrs	100	
2.	Physiotherapy in Sports conditions –II	MPS – 202	70	30	3 Hrs	100	
3.	Sports Psychology	MPS – 203	70	30	3 Hrs	100	
4.	Assessment and Evaluation in Sports conditions	MPS – 204	70	30	3 Hrs	100	
5.	Practical	MPS-205	70	30	3 Hrs	100	
6.	Dissertation(Based on Project Work)	MPS -206	70	30	3 Hrs	100	
7.	Clinical (VIVA VOCE)	MP-207	70	30	3 Hrs	100	
	Total					700	

MPT 2ND YEAR
MPT (CARDIOPULMONARY)

S.No	Subjects	Code	Theory / practical		Duration of exam	Maximum marks
			university	Internal		Total
1.	Physiotherapy in Cardiopulmonary conditions –I	MPC-201	70	30	3 Hrs	100
2.	Physiotherapy in Cardiopulmonary conditions –II	MPC – 202	70	30	3 Hrs	100
3.	Physiotherapy in ICU	MPC – 203	70	30	3 Hrs	100
4.	Assessment and Evaluation in Cardiopulmonary Conditions	MPC – 204	70	30	3 Hrs	100
5.	Practical	MPC 205	70	30	3 Hrs	100
6.	Dissertation(Based on Project Work)	MPC 206	70	30	3 Hrs	100
7.	Clinical (VIVA VOCE)	MP- 207	70	30	3 Hrs	100
	Total					700

MPT 2ND YEAR
MPT (OBSTETRICS & GYNAECOLOGY)

S.No	Subjects	Code	Theory / practical		Duration of exam	Maximum marks
			university	internal		Total
1.	Physiotherapy in OBSTETRICS & GYNAECOLOGY conditions –I	MPG-201	70	30	3 Hrs	100
2.	Physiotherapy in OBSTETRICS & GYNAECOLOGY conditions –II	MPG – 202	70	30	3 Hrs	100
3.	Biomedical Engineering and Rehabilitation Principles	MP – 203	70	30	3 Hrs	100
4.	Assessment and Evaluation in OBSTETRICS & GYNAECOLOGY conditions	MPG – 204	70	30	3 Hrs	100
5.	Practical	MPG - 205	70	30	3 Hrs	100
6.	Dissertation(Based on Project Work)	MPG - 206	70	30	3 Hrs	100
7.	Clinical (VIVA VOCE)	MP- 207	70	30	3 Hrs	100
	Total					700

INTERNAL ASSESSMENT

It will be for theory and practical both.

It will be done through the whole year.

Candidate must obtain at least 50% marks in theory and in internal assessment to be eligible for the annual university examination.

Internal assessment (Theory) will be done as follows:

- Two Mid-term examinations = 10 marks (5+5)
- Assignments/Projects/Class test/Clinical Presentations = 10 marks
- Attendance = 10 marks

Total = 30 marks

Internal assessment (Practical) will be done as follows:

- Laboratory manual = 10 marks
- Day to day performance = 10 marks
- Attendance = 10 marks

Total = 30 marks

Internal assessment of subjects without practicals will be done as :

- Two Mid-term examinations = 10 marks (5+5)

- b) Assignments/Projects/Class test/Clinical Presentations = 10 marks
c) Attendance = 10 marks **Total = 30 mark**

CRITERIA FOR PASSING

A candidate is declared to have passed University examination in a subject, if he/she secures 50% of the marks in theory and 50% in practical's separately. For computation of 50% marks in theory, the marks scored in the internal assessment (theory) shall be added to the University conducted written examination and for passing in practical the marks scored in University conducted practical examination and internal assessment (practical) shall be added together.

GRACE MARKS:

If a candidate fails in one subject (theory only) in the annual University examination, Ten grace marks will be given to the candidate by the University before the declaration of result or as per the ordinance. Candidate failing in practical examination will be considered as failed.

SUPPLEMENTARY EXAMINATION:

- a) The re-appear/improvement in End Term Examinations will be with regular End Term examinations.
- b) A student who has to re-appear/improve in a End-Term examination shall be examined as per the syllabus, which was in force at the time when he/she took the examination.
- c) A candidate who fails in a yearly examination shall be exempted from re-appearing in the paper(s) in which he may have obtained min. pass marks. Such a candidate shall be allowed to appear, for passing in the remaining paper(s), only at the next respective yearly examinations.
- d) A candidate who has passed in a paper(s), may be allowed to improve the paper(s), only in the next respective yearly examinations.
- e) The previous internal marks already obtained by the student shall be taken into account without any modification.

DIVISION:

Candidate will be awarded division at the end of fourth academic year as follows:

- Distinction - 75% and above marks in any subject.
- First division - 60% and above in the aggregate of marks of all subjects.
- Second division- 50% or more but less than 60% in the aggregate of marks of all subjects.

DEGREE:

The degree of M.P.T. course of the University shall be conferred on the candidates who have pursued the prescribed course of study for not less than two academic years and have passed examinations as prescribed under the relevant scheme.

MPT - I
Paper Code: MP- 101
REVIEW OF HUMAN SCIENCES

Theory

External Assessment-70

Internal Assessment- 30

Total Marks-100

Pass Marks-50% in each

Time- 3 hrs

Course Objective

1. Applied anatomy for supportive specification.
2. Normal functional anatomy for Analysis between normal & abnormal
3. Subject support : Diagnosis & related mechanics.
4. Pathology: Basic condition knowledge, their pathological changes & their relevant conditions to support the specialization.

Unit I: Human Anatomy

Outline of General Anatomy.

- 1- Introduction to upper limb & lower limb
 - a) Bones & Joints
 - b) Muscles
 - c) Nerves, Roots, Plexus.
 - d) Pectoral region, axilla, scapula, arm, forearm, cubital fossa & hand.
 - e) Vascular structure.
 - f) Thigh, gluteal region, popliteal fossa.
 - g) Leg, ankle and foot.
- 2- Introduction of thoracic bones & Joints.
- 3- Introduction of vertebral column.
 - a) Cervical, thoracic, lumbar, sacral spine.
 - b) Anatomy of spinal cord.
- 4- Introduction of head & neck
 - a) Neck : Side of neck
Triangle of Neck
 - b) Temporomandibular joint

- 5- Introduction to brain.
- a) Meninges, CSF
- b) Blood supply of brain & Spinal cord.
- c) Outline of ventricles
- d) Outline of brain stem.

Unit II : Human Physiology

Cardiovascular System.:

- a) Structure & Properties of heart
- b) Cardiac Cycle.
- c) The regulation of heart's performance.
- d) Cardiac output.
- e) The arterial blood pressure.
- f) The physiology of vascular system.
- g) Lymphatic circulation.

Respiratory System :

- a) Functional anatomy
- b) Ventilation & control of ventilation
- c) Alveolar air
- d) Regulation of the breathing
- e) Pulmonary function test.

Nervous System :

- a) Elementary neuroanatomy
- b) Neurons & Neuralgia
- c) Properties of nerve fibers, synapse.
- d) Spinal cord.
- e) Cerebral cortex.
- f) Pyramidal & extra pyramidal system.
- g) The cerebellum.
- h) Automatic nervous system.
- i) Cerebrospinal fluid.
- j) Cranial nerves.

Unit III : Pathology

1. General Pathology (Cell Injury, Inflammation, repair, immune system)
2. Musculoskeletal system.

- a) Bones:
 - Hereditary & Metabolic diseases.
(Osteoporosis, Rickets, Osteomalacia, Osteitis fibrosa cystica, Renal Osteodystrophy)
 - Infections:
(Osteomyelitis, tuberculosis)
 - b) Joints:
 - Degenerative joint disease.
 - Bursitis.
 - c) Skeletal muscles
(Muscle atrophy, Myositis, Muscular dystrophy, Myasthenia gravis)
3. Nervous system
- a) Infection (meningitis, encephalitis)
 - b) Vascular diseases (Ischemic encephalopathy, Cerebral infarction, Intracranial hemorrhage)
 - c) Degenerative disease
(Alzheimer's disease, Huntington's disease, Parkinsonism, Motor neuron disease)
 - d) Demyelinating disease
(Multiple sclerosis)
 - e) The peripheral nervous system
(Peripheral neuropathy, acute Idiopathic polyneuropathy, Diabetic neuropathy)

Paper Code: MP- 102
PHYSIOTHERAPY METHODS - I

Theory

External Assessment-70

Internal Assessment- 30

Total Marks-100

Pass Marks-50% in each

Time- 3 hrs

CORSE OBJECTIVE:

1. Acquire the updated knowledge of production, biophysics as well as the Physiological &therapeutic effects (at the cellular levels) of various electrical currents, Thermal agents, ultra sound & electro magnetic forces & potential risk factors on prolonged exposure.
2. Acquire the knowledge and skill of various approaches of Manual therapy for joints of the limbs & spine.
3. Be able to integrate the manual therapies to rehabilitate the Mechanical, Neuro. & Muscular problems.

Unit I: Exercise Therapy

Review of the following techniques.

- Assessment techniques like MMT & Goniometry
- Stretching and mobilization.
- Re-education and strengthening.
- Balance and Co-ordination exercises.
- Gait analysis and training (both normal & pathological gait).
- Relaxation & soft tissue manipulation.
- Posture.
- PNF.
- Traction.
- Hydrotherapy.

Unit II: Electrotherapy

- Gen. Review of low, medium & current and their modification like di-dynamic and Russian currents.
- Ultrasound.
- UVR and IRR
- Cryotherapy
- Other thermal modalities.

Unit III: Biomechanics.

- Evaluation and assessment of joint motion.
- Evaluation and assessment of locomotion.
- Evaluation and assessment of posture.

Paper Code: MP- 103
PHYSIOTHERAPY METHODS - II

Theory

External Assessment-70

Internal Assessment- 30

Total Marks-100

Pass Marks-50% in each

Time- 3 hrs

COURSE OBJECTIVES:

1. Acquire the knowledge and skill of various approaches of Manual therapy for joints of the limbs/spine.
2. Be able to integrate the manual therapies to rehabilitate the Mechanical Neuro. Muscular problems.
3. Be able to impart knowledge and train the undergraduate in Manual therapy.

Unit I : Manual Therapy: Introduction, History, Basic Classification, Assessment for manipulation, discussion in brief about the concepts of mobilization like Cyriax, Maitland & Mulligan and Butler in mobilization of joints & nerves. Methodology in general with examples, Joints/ nerves (Manipulation studies & work according to their specialization).

Unit II : Muscle Energy techniques and Positional stretch: The basic concept and application of these techniques.

Unit III : Myofascial Release: Concept & brief discussion of its application techniques.

Unit IV : Kinesio Taping: Concept & brief discussion of its application techniques.

Unit V : Pilates: Concept & brief discussion of its application techniques.

Unit VI : LASERS : Production, types, effects, application, indications & contraindications.

Unit VII : Matrix therapy : Production, types, effects, application, indications & contraindications.

Unit VIII : Nerve conduction studies and EMG: Normal & abnormal action potentials, its recording protocols, analysis & apparatus.

Unit IX : Microcurrents : Concept, Indications, Contraindications & Application.

Unit X : Biofeed back : Principles, effects, uses and contraindications.

Unit XI : Radiology & Diagnostic Studies: Reading and analysis of.

1. X-Ray.
2. C.T.Scan
3. M.R.I. Scan

Their clinical relation with various muscular skeletal disorder and nervous disorders

Unit XII : Analysis of various laboratory Examination reports and their clinical Co-relation with various muscular skeletal disorders and nervous disorders.

Paper Code: MP- 104
PROFESSIONAL ENHANCING STUDIES

Theory

External Assessment-70

Internal Assessment- 30

Total Marks-100

Pass Marks-50% in each

Time- 3 hrs

Course objectives:

1. Knowledge or Skills Acquisition to use appropriate procedures, equipment, or methods.
2. To make the students able to do research work & biostatistical analysis.
3. Skills you hope to apply or cultivate such as self-confidence, interpersonal skills, working effectively with others, professional meeting/email/telephone etiquette, networking, written communication,
4. Relationships with supervisors, time management, organization, decision making

Research Methodology and Biostatistics

SECTION A – Basics concepts:

- I. Research –Introduction, scope, characteristics, types, clinical trials and ethics.
- II. Research methods—various methods.
- III. Census and survey methods of investigation.
- IV. Hypothesis—Advantages and types.
- V. Sample - Introduction and types of sampling.
- VI. Sample size determination (according to study design)
- VII. Methods of Data Collection
 - i. Schedule –Introduction, types, procedure of forming schedule and limitations.
 - ii. Questionnaire – Introduction, types, reliability and limitations.
 - iii. Interview -- Introduction, types, technique and limitations.
 - iv. Observation – Introduction, organization of field observations and limitations.

- v. Preparation of report – Introduction, developing outline, writing, references and bibliography.

SECTION B– Concepts of Biostatistics:

- I. Biostatistics –Introduction, origin &development, scope, functions and limitations
- II. Presentation of data—Classification, tabulation, diagramatic and graphical presentation of data.
- III. Central tendencies – Mean, Mode and Median
- IV. Measures of dispersion – Standard deviation and standard errors.
- V. Skewness and kurtosis.
- VI. Odd Ratios, Receiver Operating Curve (ROC)
- VII. Probability
- VIII. Statistical Tools
 - i. Correlation and regression
 - ii. Parametric tests
 - iii. Non-parametric tests

SECTION –C

I. Concept of Morality, Ethics and Legality

1. Ethical issues in physiotherapy practice:

- i. Professionalism
- ii. Informed consent
- iii. Confidentiality
- iv. Sexual and Physical Abuse
- v. Social characteristics and Personal relationships
- vi. Professional issues
- vii. Client interest and satisfaction
- viii. Confidence and communication
- ix. Malpractice
- x. Negligence
- xi. Rights of patients
- xii. Status of physiotherapist in health care

2. Communication skills:

- i. Process of Communication
- ii. Barriers to Communication
- iii. Types of Communication
- iv. Written vs. Oral Communication
- v. Elements of good communication

II. Management – principles and applications of Management and Administration to Physiotherapy practice:

- i. Planning, organizing, staffing, finance, marketing, controlling, directing.
- ii. Setting of a physiotherapy service unit

SECTION-D

I. Education:

- i. Definition
- ii. Aims and objectives of education
- iii. Agencies of education
- iv. Formal and informal education
- v. Brief introduction to the Philosophies of education
- vi. Taxonomy of educational objectives
- vii. Essentials of physiotherapy education

II. Concept of teaching – learning

- i. Nature of learning, type and stages of learning
- ii. Factors affecting learning
- iii. Laws of learning
- iv. Learning style teaching learning process,
- v. Role of teacher in teaching learning process,
- vi. Adult learning
- vii. Teaching skills
- viii. Teaching Methods in Classroom Setting
- ix. Clinical teaching methods
- x. Planning of teaching: lesson planning and unit planning

III. Teaching aids and educational technology

IV. Curriculum:

- i. Meaning and Concept of curriculum
- ii. Factors affecting curriculum
- iii. Types of curriculum
- iv. Basic principles of curriculum construction
- v. Steps of curriculum development

V. Assessment and Evaluation:

- i. Meaning and Concepts of assessment
- ii. Measurement Evaluation and examination
- iii. Purpose of Evaluation
- iv. Types of evaluation
- v. Principles of evaluation
- vi. Techniques of evaluation
- vii. Methods and tools used in testing of knowledge, skill, clinical performance and attitude

VI. Faculty development, continuing professional education

Books Suggested

1. Bailey, N.T.J. -Statistical methods in Biology. The English universities press, London
2. Bajpai, S.R.- Methods of Social Survey and Research, Kitab Ghar, Kanpur.
3. Colton - Statistics in medicine, Little Brown Company, Boston
4. Gupta, S.P -Statistical methods. Sultan Chand and Sons Publishers , New Delhi.

5. Goulden C.H.- Methods of Statistical Analysis. Asia Publishing House , New Delhi.
6. Mohsin S.M.- Research Methods in Behavioral Sciences: Orient Publications. New Delhi.
7. Mahajan - Methods in Biostatistics, Jay Pee Brothers.Medical Publishers (P) Ltd. New Delhi.
8. Hicks- Research for Physiotherapists, Churchill Livingstone, London.
9. Meenakshi. - First Course in Methodology of Research. Kalia Prakashan, Patiala.
10. Kumar , R.- Research Methodology. Pearson Education , Australia.
11. Snedecor,G.W -Statistical Methods, Allied Pacific Pvt. Ltd., London
12. Singh, I.- Elementary Statistics for Medical Workers. Jaypee Brothers Medical Publishers (P) Ltd. New Delhi.

Paper Code: MP- 105
EXERCISE PHYSIOLOGY

Theory

External Assessment-70

Internal Assessment- 30

Total Marks-100

Pass Marks-50% in each

Time- 3 hrs

COURSE OBJECTIVE:

1. Acquired the updated knowledge of Physiology and Physical exercise & will be able to interpret the physiological effects of the vital parameters of simple laboratory tests, such as “ Stress Test”
Acquire the skill of using Bicycle – Ergometry & Treadmill for the purpose of General Fitness & Exercise tolerance for Healthy persons.
2. Be able to prescribe & train for general fitness & health promotion for children, pregnant/lactating females, Obese & elderly subjects.

SECTION- A

- I. Bioenergetics of exercise :** High energy phosphates, Anaerobic and aerobic ATP synthesis, Bioenergetics Control, exercise intensity & substrate utilization, protecting CHO stores, muscle adaptation to endurance training, processes that potentially limit the rate of fat oxidation, regulation of substrate utilization, training - induced increase in FFA oxidization:
- II.** Basal metabolic and resting metabolic rates and factors affecting them, Classification of Physical Activities by energy expenditure,. Concept of MET , measurement of energy cost of exercise
- III. Nutrition**
 - i. metabolism of Carbohydrate , fats and proteins , vitamin, mineral and water
- IV. Nutrition in exercise**
 - ii. optimum nutrition for exercise , nutrition for physical performance , pre game meal
 - iii. carbohydrate loading , food for various athletic events , fluid and energy replacement in prolonged exercise

SECTION B

- I. Respiratory responses to exercise:** Ventilation at Rest and during Exercise., Ventilation and the Anaerobic Threshold, static and dynamic lung volume . Gas diffusion, Oxygen and carbon dioxide transport second wind , stich by side control of pulmonary ventilation during exercise adaptive changes in the respiratory systems due to regular physical activities .
- II. Cardiovascular responses to exercise-** Cardiovascular system and exercise, acute vascular effects of exercise , Circulatory responses to various types of exercise regulation of cardiovascular system during exercise , Pattern of redistribution of blood flow during exercise,

adaptive responses of cardiovascular system to aerobic and anaerobic training. Athlete heart

III. Exercise and Acid Base Balance:

Acid and Bases, Buffers, pH, Respiratory Regulation of pH, Alkali Reserve, The kidneys and Acid base balance, Alkalosis and Acidosis, Acid base balance following heavy exercise.

IV. Hormonal responses to exercise with respect to

Growth Hormone (GH), Thyroid and Parathroid Hormones. Anti diuretic Hormone (ADH) and Aldosterone, Insulin and Glucagons, The catecholamine; epinephrine and norepinephrine. The sex hormones. The glucocorticoids (Cortisol) and Adrenocorticotrophic Hormones (ACTH). Prostaglandins and Endorphins:

Books suggested

1. Essentials of Exercise Physiology: McArdle, WD, Katch, FI, and Katch, VL. 2nd edn, Lippincott Williams and Wilkins (2000).
2. Fundamentals of Exercise Physiology: For Fitness Performance and Health, Robergs RA, and Roberts, S.O. McGraw Hill (2000)
3. Exercise Physiology: Powers, SK and Howley ET. 4th edn; Mc Graw Hill (2001)
4. Physiology of Sport and Exercise: Wilmore, JH and Costill, DL. Human Kinetics (1994)
5. Exercise Physiology- Human Bioenergetics and its Application: Brooks, GA, Fahey, TD, White, TP. Mayfield Publishing Company (1996)
6. Komi, P. (Ed.) (1992) Strength and power in sport. Blackwell Scientific Publications.
7. Levick, J.R. (1998) An introduction to Cardiovascular Physiology. 2nd ed. Butterworth Heinemann
8. McArdle, WD, Katch, FI & Katch, VL (2001) Exercise Physiology. 5th ed. Lippincott, Williams & Wilkins.
9. Shephard and Astrand (1996) Endurance in sport. Blackwell Scientific Publications.
10. Willmore, JH & Costill, DL (1999) Physiology of Sport and Exercise. 2nd ed. Human Kinetics.
11. Guyton, A.C. Textbook of Medical Physiology (7th Ed.). Philadelphia: Saunders, 1986, pp. 382-386, 472-476.
12. Perspectives in Nutrition (6th ed.) by Wardlaw
13. Nutrition for sport and exercise (2nd ed.) by Berning and Steen

Paper Code: MP- 106
PRACTICAL IN THERAPEUTICS

Practical

External Assessment-70

Internal Assessment- 30

Total Marks-100

Pass Marks-50% in each

Time- 3 hrs

COURSE OBJECTIVES:

1. Knowledge of basic therapeutics & practical studies of advanced therapeutics applied to different conditions/ relieving of mechanical factors assessment & treatment purpose.
2. Electro-physiological investigations and arrive at appropriate functional diagnosis with clinical reasoning electro – therapeutic modes, with appropriate clinical decision & reasoning in the management of pain / tissue healing / Wound care & skin condition conditions.
3. Electro Diagnosis to interpret Knowledge of machine for the simple electro diagnosis of motor unit and methodology of sensory and Motor conduction, Reflex study
4. Expertise in the skill to interpret the appropriate clinical reasoning.

Unit I : Exercise Therapy: Assessment of joint, muscles & nerve.

- a) All types of strengthening techniques.
- b) All type of mobilization techniques.
- c) Soft tissues stretching & mobilization.
- d) Gait analysis & training.
- e) Postural assessment & re education.
- f) Balance & coordination.
- g) Special techniques of exercise therapy.
- h) Traction.
- i) Hydrotherapy.

Unit II : Electrotherapy.

- a) All types of low & medium frequency currents.
 - Faradic.
 - Galvanic.
 - High voltage current.
 - Didynamic.
 - Russian.
 - Interferential Therapy.
 - TENS.

- Microcurrents.
-
- b) All types of high frequency currents & modalities.
 - Short wave diathermy.
 - Microwave diathermy.
 - Ultrasound.

Unit III : Miscellaneous.

- a) Cryotherapy.
- b) Biofeedback.
- c) UVR.
- d) IRR.
- e) LASER.
- f) Other heat modalities.
- g) Matrix Therapy.

Unit IV : Advanced Manual Therapy

- a) Demonstration of any one of the following manual therapy (according to their specialization field):
 - Cyriax
 - Maitland
 - Mulligan
 - Butler
 - Nerve mobilization.
 - Pilates
- b) Outline of practical knowledge of Muscle energy techniques & positional stretch
Kinesio taping and Myofascial release.

MPT-II
SPECIALIZATION- NEUROLOGICAL CONDITIONS
Paper Code: MPN 201
PHYSIOTHERAPY IN NEUROLOGICAL CONDITION I

Theory

External Assessment-70

Internal Assessment- 30

Total Marks-100

Pass Marks-50% in each

Time- 3 hrs

COURSE OBJECTIVE:

1. To correlate the clinical manifestations to the organ of dysfunction of the nervous system.
2. To understand the conservative & surgical management of the Neurological conditions and formulate a rationalized physiotherapy treatment plan for the patient.

Unit I. cranial nerves

1. Testing of cranial nerves

Unit II – Stupor and Coma

1. The neural basis of consciousness.
2. Lesions responsible for stupor and coma.
3. The assessment and investigation of the unconscious patient.
4. The management of the unconscious patient.
5. Total rehabilitation protocol.

Unit III- disorders of the Cerebral Circulation

1. Epidemiology of the stroke
2. Causes, types, pathophysiology
3. Clinical features & investigations
4. Treatment of different type of stroke
5. Recovery & rehabilitation
6. Stroke prevention.

Unit IV- infections

1. Meningitis
2. Encephalitis
3. Transverse Myelitis
4. Brain abscess
5. Syphilis
6. Herpes simplex
7. Chore
8. Tuberculosis
9. poliomyelitis

Unit V- Demyelinating Diseases of the nervous system

1. classification of demyelinating diseases.
2. Multiple sclerosis
3. Diffuse sclerosis

Unit VI- Movement disorders

1. Akathisia- rigidity Syndromes disorder
2. Dyskinesia disorders

Unit VII- Degenerative diseases of the spinal cord and cauda equina

1. Ataxia
2. Motor neuron disease

Unit VIII- Disorders/rehabilitation of the spinal cord & cauda equina

1. Acute traumatic injuries of the spinal cord
2. Haematomyelia ND Acute Central Cervical Cord Injuries
3. Slow progressive compression of the spinal cord
4. Syringomyelia
5. Ischemia and infection of the spinal cord and cauda equina

Unit XI- Disorders Of peripheral Nerves

- 1 Clinical diagnosis of peripheral neuropathy
2. All type of level of peripheral neuropathy and brachial plexus
3. Causalgia
4. Reflex sympathetic Dystrophy
5. Peripheral nerve tumors and irradiation neuropathy

6. Traumatic compressive and ischemic Neuropathy
7. Spinal radiculitis and radiculopathy
8. Hereditary motor and sensory neuropathy(HMSN) (type I II IV &V)
9. Acute idiopathic polyneuritis chronic
10. Neuropathy due to infections
11. Vasculomotor neuropathy
12. Neuropathy due to systemic medical disorders
13. Drug- induced neuropathy
14. Metal – poisoning chemical Neuropathies.
15. Nutritional neuropathies.

Books suggested

1. Cash's textbook of neurology for physiotherapists - Downi - J.P. Brothers.
2. Adult Hemiplegia - Evaluation & treatment - Bobath - Oxford Butterworth Heinmann.
3. Neurological Rehabilitation - Carr & Shepherd - Butterworth Heinmann.
4. Tetraplegia & Paraplegia - A guide for physiotherapist - Bromley - Churchill Livingstone.
5. Neurological Physiotherapy - A problem solving approach - Susan Edwards - Churchill Livingstone.
6. Neurological Rehabilitation - Umphred - Mosby.
7. Geriatric Physical Therapy - Guccione - Mosby.
8. Brunnstrom's Movement Therapy in Hemiplegia - Sawner & La Vigne - Lippincott
9. Treatment of Cerebral Palsy and Motor Delay - Sophie Levitt
10. Motor Relearning Programme for stroke - Carr & Shepherd
11. Right in the Middle - Patricia M. Davies - Springer
12. Brain's Disease of the Nervous System - Nalton - ELBS.
13. Guided to clinical Neurology - Mohn & Gaectier - Churchill Livingstone.
14. Principles of Neurology - Victor - McGraw Hill International edition.
15. Davidson's Principles and practices of medicine - Edward - Churchill Livingstone.
16. Physical Medicine & Rehabilitation - Susan Sullivan
17. Neurological Rehabilitation - Illus
18. Physical Medicine & Rehabilitation - Delsore
19. Assessment in Neurology - Dejong.
20. Differential Diagnosis - John Pattern Neurology in Clinical Practice - Bradley & Daroff
21. Neurological Assessment - Blicher staff.
22. Steps to follow - PATRICIA M. DAVIES - Springer.
23. Muscle Energy Techniques - Chaitow - Churchill Living Stone.
24. Clinical Evaluation of Muscle Function - Lacote - Churchill Living Stone.
25. Davidson's principles and Practices of Medicine - Edward Churchill Livingstone.
26. Hutchinson's Clinical Methods - Swash - Bailliere Tindall.
27. A Short Textbook of Medicine - Krishna Rao - Jaypee Brothers.
28. A Short textbook of Psychiatry - Ahuja Niraj - Jaypee Brothers.
29. Clinical neurophysiology - U. K. Mishra

Paper Code: MPN 202
PHYSIOTHERAPY IN NEUROLOGICAL CONDITIONS – II

Theory

External Assessment-70

Internal Assessment- 30

Total Marks-100

Pass Marks-50% in each

Time- 3 hrs

COURSE OBJECTIVES:

1. Compare & contrast the outcome of various physiotherapy treatment approaches.
Document the status of the patient as written records.
2. Apply Effective physiotherapy treatment techniques, compare & contrast the efficacy of different treatment approaches.
3. Communicate the status of the patient with other rehabilitation team members & patient's attendants.

UNIT I -PHYSIOTHERAPY IN PAEDIATRIC NEUROLOGY

SECTION –A

- I. Pre & post-natal Development sequence of normal child.
- II. Developmental milestones, Neonatal reflexes, various periods of growth,
- III. General assessment of child
- IV. Treatment techniques: NDT approach, Roods approach, Vojta techniques,
- V. Early identification and intervention Important Screening Tests.
 - i. Developmental Screening Tests.
 - ii. Tests of motor function.
- VI. Nutrition and Immunization: Normal nutritional requirements of a child, Prevention of some nutritional disorders, Nutritional deficiency diseases, Immunization.
- VII. High risk infants, risk factors, neonatal assessment, developmental intervention, ICU, NICU & IMC Care.

SECTION –B

- I. Cerebral Palsy: types, etiology, clinical features, management and rehabilitation of various types of cerebral palsies various approaches used in C.P.
- II. Physiotherapy in Neurological affection of childhood: poliomyelitis, spina bifida, hydrocephalus, meningitis, encephalitis, inflammatory disorders of brain and spinal cord, birth injuries of brachial plexus
- III. Physiotherapy in Muscular Disorders:

- a. myopathies of childhood,
 - b. types of muscular dystrophies,
 - c. floppy muscular dystrophy;
- IV. Role of Physiotherapy in Genetic Disorders:
- a. Down syndrome,
 - b. Fragile X Syndrome,
 - c. Rett's Syndrome,
 - d. Spinal Muscular Atrophy

UNIT II - CURRENT CONCEPTS IN NEURO PHYSIOTHERAPY

SECTION – A : Rehabilitation And Therapeutic Exercises:

- I. Treatment planning process:
 - 1. Classification of treatment techniques based on current concepts & approaches.
 - 2. All types of strengthening techniques.
 - 3. Overview of Neurological Impairments and their treatment, with emphasis on recording and documentation.
- II. Therapeutic exercises used in neurological disorders.
- III. Neuromuscular Training
 - i. Methods For Optimizing Neuromuscular & Postural Control : Proprioception Training And Kinesthetic Training (Sensory Integration),
 - ii. Problem Solving Approach,
 - iii. Motor Control ,
 - iv. Clinical Decision Making And Clinical Reasoning,
 - v. Evidence Based Practice.

SECTION-B: Advanced Neuro-therapeutic techniques:

- I. Muscle Energy Techniques (MET) Reflexology,
- II. Cranio-sacral therapy,
- III. Motor learning Theories – Concept, Therapeutic, Positional.
- IV. Myofacial release techniques
- V. Biofeedback,
- VI. Nerve mobilization (Concept): Butler concept.
- VII. Management of pain and Spasticity and paralysis in neurological disorders
- VIII. Special Neurological Approaches and Their Concept.
- IX. Robotic surgery
- X. Psychosurgery
- XI. Neurodevelopmental Approach,
- XII. Brunnstrom Approach,
- XIII. PNF Approach,
- XIV. MRP and Inhibition & facilitation techniques.
- XV. Modified CIMT.
- XVI. Electrotherapy in Neurological disorders.

UNIT III- PHYSIOTHERAPY IN NEUROSURGICAL REHABILITATION

SECTION A

Techniques types of skull , brain and spine, surgeries and their complications, pre and post surgical physiotherapy assessment and treatment.

SECTION B- CRANIO CEREBRAL INJURY(HEAD AND BRAIN INJURY)

Epidemiology, path physiologies, symptoms, signs, investigation, management, pre and post operative physiotherapy, complication,

- I- Closed skull fractures
- II- Haematomas, epidural, subdural, intracerebral
- III- Open cranio cerebral injuries
- IV- Re construction operation in head injuries.

SECTION C- TUMORS

- 1- Pathophysiology, classification effects of mass lesion symptoms and sign management pre & post operative rehabilitation protocols

- i- Tumors of cranial bone
- ii- Meningiomas
- iii- Tumors in spinal cord
- iv- Intra cranial tumors
- v- Other condition related to raised intracranial pressure.

- A) Hydrocephalus
- B) Intracranial abcess
- C) Central edema

- 2- Decompression surgery of spinal cord,
 - a) Disc operation (cervical, lumbar)
 - b) Stenosis
 - c) Oedema, abcess
 - d) Lumbar puncture

3- Peripheral nerves

- a) De-compression
- b) Nerve suture
- c) Nerve grafting

Books suggested

1. Cash's textbook of neurology for physiotherapists - Downi - J.P.Brothers.
2. Adult Hemiplegia - Evaluation & treatment - Bobath - Oxford Butterworth Heinmann.
3. Neurological Rehabilitation - Carr & Shepherd -Butter worth Heinmann.
4. Tetraplegia & Paraplegia - A guide for physiotherapist - Bromley - Churchill Livingstone.
5. Neurological Physiotherapy - A problem solving approach - Susan Edwards - Churchill Livingstone.
6. Neurological Rehabilitation - Umpherd - Mosby.
7. Geriatric Physical Therapy - Gucciona - Mosby.
8. Brunnstrom's Movement Therapy in Hemiplegia-Sawner&La Vigne-Lippincott
9. Treatment of Cerebral Palsy and Motor Delay-Sophie Levitt
10. Motor Relearning Programme for stroke-carr&Shepherd
11. Right in the Middle-Patricia M.Davies-Springer
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20. Differential Diagnosis-John PatternNeurology in Clinical Practice – Bradley&Daroff
21. Neurological Assessment-Blicker staff.
22. Steps to follow-PATRICIA M.DAVIES-Springer.
23. Muscle Energy Techniques-Chaitow-Churchill Living Stone.
24. Clinical Evaluation of Muscle Function-Lacote- Churchill Living Stone.
25. Davidson's principles and Practices of Medicine - Edward Churchill Livingstone.
26. Hutchinson's Clinical Methods – Swash – Bailliere Tindall..
27. A Short Textbook of Medicine - Krishna Rao - Jaypee Brothers.
28. A Short textbook ofPsychiatry_ Ahuja Niraj - Jaypee Brothers.
29. Neurology & neurosurgery illustrated- Kenneth W. Lindsay, Ian bone
30. Neurological intervention- Martin Kessler

PAPER CODE – MP203
BIOENGINEERING AND REHABILITATION PRINCIPLE

Theory

External Assessment-70

Internal Assessment- 30

Total Marks-100

Pass Marks-50% in each

Time- 3 hrs

COURSE OBJECTIVES:

1. To understand the rehabilitation concepts and Rehabilitation team members for future development and applications.
2. To study and understand various Principles of Rehabilitation Engineering, types of Therapeutic Exercise Technique, various orthotic devices and prosthetic devices to overcome orthopedic, neurological problems.

SECTION A

- i. Conceptual framework of rehabilitation, roles of rehabilitation team members, definitions and various models of rehabilitation. International classification of functioning
- ii. Epidemiology of disability with emphasis on locomotor disability, impact of disability on individual, family, and society. Psychological aspects and adjustment during rehabilitation of disabled
- iii. Preventive aspects of disability and organizational skills to run disability services
- iv. **Model of service delivery** : feature , merits and demerits of institutional based rehabilitation , outreach programmes, Community based rehabilitation
- v. **Legal Aspect in Disabilities:** PWD act , national trust act , RCI act, Statutory provisions Schemes of assistance to persons with disabilities
- vi. Govt and NGO participation in disability RCI
- vii. Principles of Orthotics- types, indications, contra indications, assessment (check out), uses and fitting –region wise.
 - a. Orthotics for the Upper Limb
 - b. Orthotics for the Lower Limb
 - c. Orthotics for the Spine
- viii. **Principles of prostheses-** types, indications, contra indications, assessment (check out), uses and fitting –region wise.

SECTION B

- i. An outline of principles and methods of rehabilitation of speech and hearing disability
- ii. An outline of principles and methods of vocational and social rehabilitation
- iii. An outline of principles and methods of rehabilitation of mentally handicapped
- iv. An outline of principles , methods and scope occupational therapy
- v. Architectural Barriers: Describe architectural barriers and possible modifications with reference to Rheumatoid Arthritis, CVA, Spinal Cord Injury and other disabling conditions.
- vi. An outline of the principles and process of disability evaluation.

PAPER CODE –MPN204
ASSESSMENT AND EVALUATION IN NEUROLOGY

Theory

External Assessment-70

Internal Assessment- 30

Total Marks-100

Pass Marks-50% in each

Time- 3 hrs

COURSE OBJECTIVE:

1. Demonstrate competency in performing and interpreting the neurological history & examination.
2. Assess, formulate a differential diagnosis and propose initial evaluation and management for patient with neurological disorders
3. Rehabilitate the patient in society, patient and family education to cope up with the disability.

SECTION A – Physical Therapy Assessment Procedures Used In Neurological Conditions:

I. Neurological assessment, evaluation and correlation of findings with neurological dysfunction

- a) History taking and examination of neurologically ill patient
- b) Higher cerebral function examination,
- c) Cognitive and perceptual assessment,
- d) Cranial nerves examination
- e) Motor System Assessment - Tone, voluntary movement control & abnormal involuntary movement,
- f) Assessment of reflex integrity
- g) Assessment of gait (kinetic & kinematic)
- h) Sensory system assessment and examination

II. Balance and Co-ordination

Assessment evaluation of following and correlation of findings with neurological dysfunction

- a) Balance, equilibrium and Coordination assessment.
- b) Assessment of Autonomic nervous system function.
- c) Vestibular Examination
- d) Assessment of unconscious patient.

SECTION B- Neurological Assessment scales and measurement tools

- I. Functional Assessment scales: Barthel index, Katz Index of ADL, FIM Scale, Sickness Impact Profile, Outcome & Assessment Information Set (OASIS).IADL.
- II. Functional balance and coordination scales: functional reach test, Timed up and go test, Get up and go test, Berg balance Scale, CTSIB, Scales used in ataxia

- III. Rehabilitation Outcome measure scales: Quality of life Measures, Scales used in Assessment of elderly.
- IV. Advanced Neurological Assessment Procedures:
 - i. **Disease Specific Measurements scales and tools:** Clinical Stroke scales, Scales used in spinal cord injury, Scales for the assessment of movement disorders, Multiple sclerosis, Scales for assessment of Brain injury And Cognitive scales,
 - ii. **Laboratory Examination** related to Neurological Disorders: Lumbar puncture & CSF Analysis
 - iii. **Neuro-dynamic tests.**
 - a. Slump test
 - b. SLR
 - c. ULTT

Books suggested

1. Cash's textbook of neurology for physiotherapists - Downi - J.P.Brothers.
2. Adult Hemiplegia - Evaluation & treatment - Bobath - Oxford Butterworth Heinmann.
3. Neurological Rehabilitation - Carr & Shepherd -Butter worth Heinmann.
4. Tetraplegia & Paraplegia - A guide for physiotherapist - Bromley - Churchill Livingstone.
5. Neurological Physiotherapy - A problem solving approach - Susan Edwards - Churchill Livingstone.
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7. Geriatric Physical Therapy - Gucciona - Mosby.
8. Brunnstrom's Movement Therapy in Hemiplegia-Sawner&La Vigne-Lippincott
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10. Motor Relearning Programme for stroke-carr&Shepherd
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14. Principles of Neurology - Victor - McGraw Hill International edition.
15. Davidson's Principles and practices of medicine - Edward – Churchill Livingstone.
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25. Davidson's principles and Practices of Medicine - Edward Churchill Livingstone.
26. Hutchinson's Clinical Methods – Swash – Bailliere Tindall..
27. A Short Textbook of Medicine - Krishna Rao - Jaypee Brothers.
28. A Short textbook ofPsychiatry_ Ahuja Niraj - Jaypee Brothers.

MPT-II
SPECIALIZATION- MUSCULOSKELETAL CONDITIONS

**PAPER CODE- MPO201 PHYSIOTHERAPY IN
MUSCULOSKELETAL CONDITIONS -I**

Theory

External Assessment-70

Internal Assessment- 30

Total Marks-100

Pass Marks-50% in each

Time- 3 hrs

COURSE OBJECTIVES:

Students will be able to identified –

1. General Orthopedics, Methods of diagnosis, Infections in bones and joints& development disorders
2. Regional Orthopedics and Rehabilitation.
3. Bony & Soft Tissue disorders of
4. Incidence etiology, clinical features, complications, assessment, investigations and conservative physiotherapy management of Fractures and dislocations, burns.
5. Some Common Orthopedics Surgeries, their rehabilitation, amputation, types, Levels & procedure, Pre and post-o
6. perative rehabilitation, Prosthesis and stump care.
7. Current Concepts in Musculoskeletal Physiotherapy &Manual Therapy, concepts of mobilization

Unit I: General Orthopedics

- 1) Methods of diagnosis
- 2) Infections in bones and joints
- 3) Rheumatic disorders
- 4) Generalized affections of bone and joints (metabolic & endocrinal)
- 5) Development disorders. (cartilaginous dysplasia, bony dysplasia & chromosomal abnormalities etc.)
- 6) Congenital disorders
- 7) Degenerative disorders
- 8) Tumors of bones
- 9) Osteonecrosis and osteochondritis.
- 10) Neurological and muscular disorders & peripheral nerve injuries.

Unit II: Regional Orthopedics and Rehabilitation.

Bony & Soft Tissue disorders of:-

- | | |
|---------------------|----------------------|
| 1) Shoulder and arm | 2) Elbow and forearm |
| 3) Wrist | 4) Hip and thigh |
| 5) Knee and leg | 6) Ankle and foot |

Unit III: Traumatology

- a) Incidence aetiology, clinical features, complications, assessment, investigations and conservative reductions physiotherapy management of the following:-
1. Fractures and dislocations of upper limb.
 2. Fractures and dislocations of lower limb
 3. Fractures and dislocations of pelvis
 4. Stress fractures
 5. Burns.

Unit IV: Some Common Orthopedics Surgeries: Methodology of some common surgeries and their rehabilitation. Meniscectomy, Iaminectomy, patellectomy, total knee replacement, total hip replacement triple arthrodesis, hip arthrodesis and arthroplasty, bone grafting, internal and external fixations, tendon transfers, nerve suturing and grafting etc.

Unit V: Amputation

1. Types, Levels & procedures
2. Pre and post operative rehabilitation.
3. Prosthesis and stump care.

Unit VI: Current Concepts in Musculoskeletal Physiotherapy

SECTION A

- I. Pain management
- II. Back School
- III. Butler mobilization of nerves
- IV. Manual Therapy: Introduction, History, Basic Classification, Assessment for manipulation, discussion in brief about the concepts of mobilization like
 - i. Cyriax,
 - ii. Maitland
 - iii. Mulligan

SECTION B

- I. Myofasical Release: Concept & brief discussion of its application technique
- II. Muscle Energy Techniques
- III. Positional release technique
- IV. Body Composition & Weight Control:
 - i. Composition of human body
 - ii. Somatotyping
 - iii. Techniques of body composition analysis
 - iv. Obesity
 - v. Health risks of obesity

Books suggested

1. Turek's Orthopaedics: Principles and their Application , Weinstein SL and Buckwalter JA, Lippincott
2. Apley's System of Orthopaedics and Fractures , Louis Solomon , Arnold publishers.
3. Textbook of Orthopaedics, Adams: Churchill Livingstone
4. Clinical Orthopaedic Rehabilitation, Brent Brotzman.
5. Orthopaedic Physiotherapy, Robert A Donatelli, Churchill Livingstone.
6. Tidy's Physiotherapy, Ann Thomasons , Varghese publishing House.
7. Physical Rehabilitation Assessment and Treatment, Susan Sullivan, Japee brothers
8. Textbook of Orthopaedics, John Ebnezar, Japee Brothers.
9. Pain Series Rene Calliet., Japee Brothers.
10. Physical therapy of shoulder, Robert A Donatelli, Churchill Livingstone
11. Geriatric physiotherapy Guccione AA, Mosby.
12. Hand practice , Principle and Practice, Mauren Salter, Butterworth Heinemann.
13. Essentials of Orthopaedics and Applied Physiotherapy , Jayant Joshi,prakash Kotwal; Churchill Livingstone
14. Essential Orthopaedics , J Maheshwari, Mehta Publishers.
15. Practical Orthopaedic Medicine , Brain Corrigan, Butterworth.
16. Principle and Practice of Orthopaedics Sports Medicine, William E Garrett, Lippincott William and Wilkins.

**PAPER CODE- MPO201 PHYSIOTHERAPY IN
MUSCULOSKELETAL CONDITIONS -II**

Theory

External Assessment-70

Internal Assessment- 30

Total Marks-100

Pass Marks-50% in each

Time- 3 hrs

COURSE OBJECTIVES:

Students will be able to define: -

1. Pathophysiology, causes, clinical features, complication examinations, management, physiotherapytreatment of common vertebral disorders
2. Advance techniques like Maitland, Cyriax, PNF, etc.
3. Review of anatomy and biomechanics, Congenital &Inflammatory disorders, deformities of vertebral column soft tissues etc.
4. Low Back pain and Regional vertebral column injuries.
5. Soft tissue injuries& Bone injuries, Pelvic injuries. Spinal cord injuries, Management& rehabilitation, Bio engineering appliances & support devices
6. Rehabilitation in hand dysfunction, TendonInjuries, Nerveinjuries. Crush injuriesand correction of deformities, Reflex sympathetic dystrophy.

Pathophysiology, causes, clinical features, complication examinations, management, physiotherapy treatment of common vertebral disorders

Advance techniques like Maitland, Cyriax, PNF, etc. apply according to the necessary cases.

- Unit I:** Review of anatomy and biomechanics of vertebral column
- Unit II:** Congenital disorders of vertebral column & vertebral deformities.
- Unit III:** Inflammatory disorders of vertebrae, vertebral joints & soft tissues etc.
- Unit IV:** Disease of the vertebral joints, segmental instability
- Unit V:** Disorders of structural changes, changes of alignment of bone, joint of vertebral column.
- Unit VI:** Low Back pain, pain in vertebral column & stiffness disorders.

Regional:- Cervical
 Lumbar
 Thoracic
 Sacral

- Unit VII:** Traumatic injuries of vertebral column: General & regional injuries.
1. Soft tissue injuries, tightness, structural changes.
 2. Bone injuries (fractures & dislocations of spine) Pelvic injuries.
 3. Pelvic injuries.

Unit VIII: Spinal cord injuries

1. Types, Classifications
2. Pathology
3. Level
4. Examination
5. Management & rehabilitation
6. Orthopedic surgeries
7. Bio engineering appliances & support devices
8. Pre & post operative rehabilitation.

Unit IX: REHABILITATION in HAND dysfunction

I: Functions of hand as motor and sensory organ with advanced bio and patho mechanics of hand. Classification of hand injuries and principles of hand rehabilitation (functional and vocational Training).

II: a) Tendon Injuries b) Nerve injuries c) Crush injuries

Incision, their effects on later rehabilitation, fractures, joint injuries and correction of deformities.

III:

- | | |
|---------------------------------|-----------------------------|
| a) Burns in hand | b) Spastic hand |
| c) Rheumatoid hand | d) Hand in Hansen's disease |
| e) Reflex sympathetic dystrophy | |

IV

- | | |
|-------------------------------------|--------------------|
| a) Phantom hand pain | b) Prosthetic hand |
| c) Orthosis for hand and their uses | |

Books suggested

1. Turek's Orthopaedics: Principles and their Application, Weinstein SL and Buckwalter JA, Lippincott
2. Apley's System of Orthopaedics and Fractures, Louis Solomon, Arnold publishers.
3. Textbook of Orthopaedics, Adams: Churchill Livingstone
4. Clinical Orthopaedic Rehabilitation, Brent Brotzman.
5. Orthopaedic Physiotherapy, Robert A Donatelli, Churchill Livingstone.
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11. Geriatric physiotherapy Guccione AA, Mosby.
12. Hand practice, Principle and Practice, Mauren Salter, Butterworth Heinemann.
13. Essentials of Orthopaedics and Applied Physiotherapy, Jayant Joshi, Prakash Kotwal; Churchill Livingstone
14. Essential Orthopaedics, J Maheshwari, Mehta Publishers.
15. Practical Orthopaedic Medicine, Brian Corrigan, Butterworth.
16. Principle and Practice of Orthopaedics Sports Medicine, William E Garrett, Lippincott William and Wilkins.

PAPER CODE – MP203
BIOENGINEERING AND REHABILITATION PRINCIPLE

Theory

External Assessment-70

Internal Assessment- 30

Total Marks-100

Pass Marks-50% in each

Time- 3 hrs

COURSE OBJECTIVES:

- a. To understand the rehabilitation concepts and Rehabilitation team members for future development and applications.
- b. To study and understand various Principles of Rehabilitation Engineering, types of Therapeutic Exercise Technique, various orthotic devices and prosthetic devices to overcome orthopedic, neurological problems.

SECTION A

- I. Conceptual framework of rehabilitation, roles of rehabilitation team members, definitions and various models of rehabilitation. International classification of functioning
- II. Epidemiology of disability with emphasis on locomotor disability, impact of disability on individual, family, and society. Psychological aspects and adjustment during rehabilitation of disabled
- III. Preventive aspects of disability and organizational skills to run disability services
- IV. **Model of service delivery** : feature , merits and demerits of institutional based rehabilitation , outreach programmes, Community based rehabilitation
- V. **Legal Aspect in Disabilities**: PWD act , national trust act , RCI act, Statutory provisions Schemes of assistance to persons with disabilities
- VI. Govt and NGO participation in disability RCI
- VII. Principles of Orthotics- types, indications, contra indications, assessment (check out), uses and fitting –region wise.
 - a. Orthotics for the Upper Limb
 - b. Orthotics for the Lower Limb
 - c. Orthotics for the Spine
- VIII. **Principles of prostheses**- types, indications, contra indications, assessment (check out), uses and fitting –region wise.

SECTION B

- I. An outline of principles and methods of rehabilitation of speech and hearing disability
- II. An outline of principles and methods of vocational and social rehabilitation
- III. An outline of principles and methods of rehabilitation of mentally handicapped
- IV. An outline of principles , methods and scope occupational therapy
- V. Architectural Barriers: Describe architectural barriers and possible modifications with reference to Rheumatoid Arthritis, CVA, Spinal Cord Injury and other disabling conditions.
- VI. An outline of the principles and process of disability evaluation.

PAPER CODE MPO204
ASSESSMENT AND EVALUATION IN MUSCULOSKELETAL
CONDITIONS

Theory

External Assessment-70

Internal Assessment- 30

Total Marks-100

Pass Marks-50% in each

Time- 3 hrs

COURSE OBJECTIVE:

Students will be able to define techniques of

1. Physiotherapeutic assessment, evaluation and clinical reasoning in orthopedics
Introduction to various concepts of physical assessment
2. Overview of various investigatory procedures
3. Assessment of Amputee, geriatric patient, functional Assessment, upper Extremity
4. Examination of lower extremity & Examination of Spine, head and Face

Section A—Introduction of Assessment Techniques

- I. Physiotherapeutic assessment, evaluation and clinical reasoning in orthopedics
Introduction to various concepts of physical assessment
 - i. Maitland
 - ii. James
 - iii. Cyriax
- II. Overview of various investigatory procedures (Hematology and Serology, imaging techniques, arthroscopy, BMD)
- III. Assessment of Amputee
- IV. Examination and assessment of geriatric patient
- V. Functional Assessment
- VI. Examination of Upper Extremity
 - i. Shoulder
 - ii. Elbow
 - iii. Forearm,
 - iv. Wrist and Hand

Section B-- Examination of lower extremity & Examination of

- I. Spine
- II. Pelvis
- III. Hip
- IV. Knee
- V. Lower Leg, Ankle and Foot
- VI. Head and Face
- VII. Cervical spine
- VIII. Thoracic Spine
- IX. Lumbar Spine

Books suggested

1. Orthopaedic Physiotherapy, Robert A Donatelli, Churchill Livingstone.
2. Physical Rehabilitation Assessment and Treatment, Susan Sullivan, Jaypee brothers
3. Physical therapy of shoulder, Robert A Donatelli, Churchill Livingston
4. Orthopaedic Physical Assessment David J Magee, Saunders
5. Manual Examination and Treatment of the Spine and Extremities , Carolyn Wadsworth, Williams and Wilkins.
6. Illustrated Orthopaedic physical Assessment , Ronald C Evans , Mosby.
7. Physical Examination of the Spine and Extrimities , Stenley, Lipenfield.
8. Clinical Orthopaedic Examination , Mc Rae, Churchill Livingstone.

MPT-II
SPECIALIZATION- SPORTS CONDITIONS

PAPER CODE – MPS201
PHYIOTHERAPY IN SPORTS CONDITIONS –I

Theory

External Assessment-70

Internal Assessment- 30

Total Marks-100

Pass Marks-50% in each

Time- 3 hrs

SECTION A - Lower Limb & Upper limb Examination

- I. Examination of lower limb
- II. Common acute and overuse injuries of lower Extremity(with respect to causation, prevention and management) of:
 - i. Pelvis
 - ii. Hip
 - iii. Thigh
 - iv. Knee
 - v. Leg
 - vi. Ankle and Foot
- III. Examination of Upper Extremity
- IV. Common acute and overuse injuries of upper extremities (with respect to causation, prevention and management) of:
 - i. Shoulder girdle
 - ii. Shoulder
 - iii. Arm
 - iv. Elbow &Forearm
 - v. Wrist and hand.

SECTION B : NON TRAUMATIC MEDICAL CONDITIONS OF AN ATHLETE

- I. Illness
- II. Hypertension
- III. Urine abnormalities
- IV. Exercise Induced Asthma
- V. Anemia
- VI. Delayed onset muscle soreness (DOMS)
- VII. Runner's high & Exercise addiction.
- VIII. G.I.T. Diseases
- IX. Exercises and congestive heart failure
- X. Exercise for Post coronary & bye pass patients
- XI. Exercise for diabetics
- XII. Diagnosis and management of skin conditions of Athletes
 1. Bacterial infections
 2. Fungal Infections
 3. Viral infections

4. Boils
5. Cellulites.

SECTION C

- I. Female Specific problems
 1. Sports Amenorrhea.
 2. Injury to female reproductive tract.
 3. Menstrual Synchrony.
 4. Sex determination.
 5. Exercise and pregnancy.
 6. Eating disorders in athletes
- II. Common Infectious disease:
 1. Common Cold
 2. Diarrhoea
 3. Dysentery
 4. Typhoid
 5. Cholera
 6. Amoebiasis
 7. Food Poisoning
 8. Tuberculosis
 9. Malaria
 10. Hepatitis
 11. Venereal disease etc.
- III. AIDS in sports people.

Books suggested

1. Morris B. Mellion: Office Sports Medicine, Hanley & Belfus.
2. Richard B. Birrer: Sports Medicine for the primary care Physician, CRC Press.
3. Torg, Welsh & Shephard: Current Therapy in Sports Medicine III - Mosby.
4. Zulunga et al: Sports Physiotherapy, W.B. Saunders.
5. Brukner and Khan: Clinical Sports Medicine, McGraw Hill.
6. Reed: Sports Injuries – Assessment and Rehabilitation, W.B. Saunders.
7. Gould: Orthopaedic Sports Physical Therapy, Mosby.
8. C. Norris: Sports Injuries – Diagnosis and Management for Physiotherapists, Heinmann.
9. D. Kulund: The Injured Athlete, Lippincott.
10. Nicholas Hershman: Vol. I The Upper Extremity in Sports Medicine.
Vol. II The Lower Extremity and Spine in Sports Medicine.
Vol. III The Lower Extremity and Spine in Sports Medicine.
Mosby.
11. Lee & Dress: Orthopaedic Sports Medicine - W.B Saunders.
12. K. Park: Preventive and Social Medicine - Banarsi Dass Bhanot - Jabalpur.
13. Fu and Stone: Sports Injuries: Mechanism, Prevention and Treatment, Williams and Wilkins.
14. Scuderi, McCann, Bruno: Sports Medicine – Principles of Primary Care, Mosby.
15. Lars Peterson and Per Renstron: Sports Injuries – Their prevention and treatment, Dunitz.
16. Morris B. Mellion: Office Sports Medicine, Hanley & Belfus.
17. 2. Richard B. Birrer: Sports Medicine for the primary care Physician, CRC Press.
18. 3. Torg, Welsh & Shephard: Current Therapy in Sports Medicine III - Mosby.

19. 4. Zulunga et al: Sports Physiotherapy, W.B. Saunders.
20. 5. Brukner and Khan: Clinical Sports Medicine, McGraw Hill.
21. 6. Reed: Sports Injuries – Assessment and Rehabilitation, W.B. Saunders.
22. 7. Gould: Orthopedic Sports Physical Therapy, Mosby.
23. 8. C. Norris: Sports Injuries – Diagnosis and Management for Physiotherapists,
24. Heinmann.
25. 9. D. Kulund: The Injured Athlete, Lippincott.
26. 10. Nicholas Hershman: Vol. I The Upper Extremity in Sports Medicine.
27. Vol. II The Lower Extremity and Spine in Sports Medicine.
28. Vol. III The Lower Extremity and Spine in Sports Medicine.
29. Mosby.
30. 11. Lee & Dress: Orthopedic Sports Medicine - W.B Saunders.
31. 12. K. Park: Preventive and Social Medicine - Banarsi Dass Bhanot - Jabalpur..
32. 13. Fu and Stone: Sports Injuries: Mechanism, Prevention and Treatment, Williams and
33. Wilkins.
34. 14. Scuderi, McCann, Bruno: Sports Medicine – Principles of Primary Care, Mosby.
35. 15. Lars Peterson and Per Renström: Sports Injuries – Their prevention and treatment,
36. Dunitz.

PAPER CODE – MPS202
PHYSIOTHERAPY IN SPORTS CONDITIONS -II

Theory

External Assessment-70

Internal Assessment- 30

Total Marks-100

Pass Marks-50% in each

Time- 3 hrs

SECTION A

- I. Assessment of vertebral column:
 1. Cervical
 2. Thoracic
 3. Lumbosacral including Tests of Neural Tension.
- II. Common sports injuries of spine with respect to causation, prevention and management
- III. Sporting emergencies & first aid

2. Head and neck
3. Face
4. Abdominal injuries
- IV. Cardio pulmonary Resuscitation; Shock management, Internal and External Bleeding, Splinting, Stretcher use-Handling and transfer
- V. Management of Cardiac Arrest, acute asthma, epilepsy, drowning, burn
- VI. Medical management of Mass Participation
- VII. Heat stroke and Heat illness.

SECTION B

- I. Kinanthropometric evaluation
- II. Kinesiological EMG
- III. Sports specific injuries, with special emphasis on the specific risk factor, nature of Sports, kind of medical intervention anticipated and prevention with respect to various sporting events
 1. Individual events: Field & Track
 2. Team events: Hockey, Cricket, and Football
 3. Contact and Non-contact sports
 4. Water sports

SECTION –C, Current Concepts of Sports Medicine

- I. Exercise and Common Pulmonary Conditions
 1. Exercise induced bronchial obstruction
 2. Exercise in chronic airway obstruction
 3. Air pollution and exercise
- II. Exercise and Cardiac Conditions
 1. Exercise prescription for heart disease
 2. Exercise in primary prevention in ischemic heart disease
 3. Exercise for secondary prevention of ischemic heart disease
- III. Diabetes and Exercise
 1. Exercise in diabetic patients
 2. Exercise as a method of control of diabetes
- IV. Protective equipments design of shoe safety factors in equipment.
- V. Special concerns for handicapped athletes
- VI. Disability sports, Paralympics
- VII. Exercises for special categories
 1. Child and adolescent athlete's problems
 2. Special problems of older athletes
 3. Sports and exercise programme for geriatrics and rheumatic population
- VIII. Doping in Sports
- IX. IOC prohibited drugs- groups and classifications
- X. IOC rules and regulations on doping in sports hazards of prohibited substances
- XI. **Identification of talent for sports –**

1. Meaning and its importance
2. Detailed procedure for screening and identification of sports talent
3. Prediction of adult potentials at the young age.

Books suggested

1. Morris B. Mellion: Office Sports Medicine, Hanley & Belfus.
 2. Richard B. Birrer: Sports Medicine for the primary care Physician, CRC Press.
 3. Torg, Welsh & Shephard: Current Therapy in Sports Medicine III - Mosby.
 4. Zulunga et al: Sports Physiotherapy, W.B. Saunders.
 5. Brukner and Khan: Clinical Sports Medicine, McGraw Hill.
 6. Reed: Sports Injuries – Assessment and Rehabilitation, W.B. Saunders.
 7. Gould: Orthopaedic Sports Physical Therapy, Mosby.
 8. C. Norris: Sports Injuries – Diagnosis and Management for Physiotherapists, Heinmann.
 9. D. Kulund: The Injured Athlete, Lippincott.
 10. Nicholas Hershman: Vol. I The Upper Extremity in Sports Medicine.
 - a. Vol. II The Lower Extremity and Spine in Sports Medicine.
 - b. Vol. III The Lower Extremity and Spine in Sports Medicine.
 - c. Mosby.
 11. Lee & Dress: Orthopaedic Sports Medicine - W.B Saunders.
 12. K. Park: Preventive and Social Medicine - Banarsi Dass Bhanot - Jabalpur.
 13. Fu and Stone: Sports Injuries: Mechanism, Prevention and Treatment, Williams and Wilkins.
 14. Scuderi, McCann, Bruno: Sports Medicine – Principles of Primary Care, Mosby.
 15. Lars Peterson and Per Renström: Sports Injuries – Their prevention and treatment, Dunitz.
-
16. 1. Morris B. Mellion: Office Sports Medicine, Hanley & Belfus.
 17. 2. Richard B. Birrer: Sports Medicine for the primary care Physician, CRC Press.
 18. 3. Torg, Welsh & Shephard: Current Therapy in Sports Medicine III - Mosby.
 19. 4. Zulunga et al: Sports Physiotherapy, W.B. Saunders.
 20. 5. Brukner and Khan: Clinical Sports Medicine, McGraw Hill.
 21. 6. Reed: Sports Injuries – Assessment and Rehabilitation, W.B. Saunders.
 22. 7. Gould: Orthopaedic Sports Physical Therapy, Mosby.
 23. 8. C. Norris: Sports Injuries – Diagnosis and Management for Physiotherapists,
 24. Heinmann.
 25. 9. D. Kulund: The Injured Athlete, Lippincott.
 26. 10. Nicholas Hershman: Vol. I The Upper Extremity in Sports Medicine.
 27. Vol. II The Lower Extremity and Spine in Sports Medicine.
 28. Vol. III The Lower Extremity and Spine in Sports Medicine.
 29. Mosby.
 30. 11. Lee & Dress: Orthopaedic Sports Medicine - W.B Saunders.
 31. 12. K. Park: Preventive and Social Medicine - Banarsi Dass Bhanot - Jabalpur..
 32. 13. Fu and Stone: Sports Injuries: Mechanism, Prevention and Treatment, Williams
 33. and Wilkins.
 34. 14. Scuderi, McCann, Bruno: Sports Medicine – Principles of Primary Care, Mosby.
 35. 15. Lars Peterson and Per Renström: Sports Injuries – Their prevention and treatment,
 36. Dunitz.

PAPER CODE MPS203
SPORTS PSYCHOLOGY

Theory

External Assessment-70

Internal Assessment- 30

Total Marks-100

Pass Marks-50% in each

Time- 3 hrs

SECTION A

- I. History and current status of Sports Psychology.
- II. Personality Assessment and sports personality.
 1. Theories of personality
 2. Personality assessment
- III. Attention and perception in sports.
 1. Attention
 2. Perception
- IV. Concentration training in sports.
 1. Basic principles of concentration
 2. Concentration training
 3. Concentration awareness exercises
- V. Motivational orientation in sports.
 1. Athlete's needs of motivation
 2. Motivational inhibitors
 3. Motivational techniques
- VI. Pre-competitive anxiety.
 1. Source of PCA
 2. Effect of PCA on performance
- VII. Relaxation Training.
 1. Definition
 2. Types of relaxation trainings
 - i) Progressive muscle relaxation
 - ii) Breathing exercises
 - iii) Yog-nidra
 - iv) Transcendental meditation
- VIII. Aggression in sports.
 1. Theories of aggression
 2. Management of aggression
- IX. Role of Psychology in Dealing with injuries.
- X. Eating disorders.
 - a. Etiology of eating disorders
 - b. Types of eating disorders
 - c. Complications of eating disorders
- XI. Goal setting

SECTION B

- I. Psychological aspect of doping
- II. Psychological preparation of elite athletes
 1. Concept of psychological preparation
- III. Biofeedback training
- IV. Mental imagery
- V. Stress management
 1. Principles of Stress Management
 2. Stress Management technique
- VI. Group Behaviour and leadership
 1. Nature of group behaviour and group.
 2. Types of group.
 3. Educational implication of group behaviour.
 4. Meaning of leadership, types of leadership quality of leadership, training and functioning of leadership.
- VII. Emotion
 1. Meaning of emotion.
 2. Characteristics of emotion.
 3. Meaning of controlling and training of emotions and its importance.
 4. Contribution of sports to emotional health.
 5. Meaning of sentiment, its type, importance and formation.

Books suggested

1. Morgan and King: Introduction to Psychology - Tata McGraw Hill.
2. Suinn: Psychology in Sports: Methods and applications, Surjeet Publications.
3. Grafiati: Psychology in contemporary sports, Prentice Hall.
4. Basmajian: Biofeedback
5. Sanjiv P. Sahni: Handbook of Sports Psychology – A comprehensive manual of Mental Training

PAPER CODE MPS204

ASSESSMENT AND EVALUATION IN SPORTS CONDITIONS

Theory

External Assessment-70

Internal Assessment- 30

Total Marks-100

Pass Marks-50% in each

Time- 3 hrs

SECTION A-Assessment and evaluation in Sports Injuries

- I. Importance of assessment & evaluation
- II. Outlines of principles and Methods of evaluation
- III. Clinical Examination , Investigative Procedures and documentation of sports injuries

- IV. Causes & Mechanism of Sports Injuries
- V. Prevention of Sports injuries
- VI. Principle of management of sports injuries
- VII. Evaluation of Physical Fitness
 - i. Assessment of components of physical fitness including functional tests: muscle strength, flexibility, agility, balance, co-ordination, sensory deficits, cardio-pulmonary endurance
 - ii. Sports-Specific evaluation and criteria for return to sport

SECTION B-Assessment and evaluation in Athlete Injuries

1. Medical terminology associated with anatomical structures commonly involved with athletics injuries and disease and diagnostic procedures and therapeutic nomenclature associated with athletic injuries and common illness.
2. Etiology and evaluation of the head and neck injuries and unconscious athlete.
 - a. Fascial Injuries
 - b. Cervical spine injuries
3. Etiology and evaluation of the trunk injuries.
 - a. Chest thorac injuries
 - b. Abdominal injuries
 - c. Spine injuries
4. Etiology and evaluation of the upper extremities injuries.
 - a. Shoulder injuries
 - b. Elbow, forearm injuries
 - c. Wrist. Hand & finger injuries
5. Etiology & evaluation of the lower extremity injuries.
 - a. Hip & thigh injuries
 - b. Knee & leg injuries
 - c. Ankle & foot injuries
6. Environmental concerns.
7. Non Athletic Conditions.

Medical aspects of training:-

It is designed to expose the athletic training student to the necessary recognition, evaluation and treatments skill need to assess a variety of medical conditions affecting athletes and physically active individuals emphasis will be on developing clinical professions of advanced assessment related to pathologies & disorders affecting the endocrine, exocrine respiratory and autonomic nervous system.

SECTION C-Assessment of Injuries related to particular sports.

Physiotherapy assessment of commonly encountered injuries related to sports activities given:

1. Injuries related to cricket.
2. Injuries related to Judo
3. Injuries related to Throwball
4. Injuries related to Basketball
5. Injuries related to Discus throw
6. Injuries related to Foot ball
7. Injuries related to Baseball
8. Injuries related to Badminton

9. Injuries related to Tennis
10. Injuries related to Gymnastic
11. Injuries related to Javelin
12. Injuries related to Running
13. Injuries related to Swimming
14. Injuries related to Jumping

Book References:

- a. Starkey,C., &RyanJ.L.(2002). Evaluation of orthopaedic & athletic F.A.Davis.
- b. Arnheim,D.D.,& Prentice, W.E.(2000) Principles of athletic training 10th Ed.Brown & Benchmark.
- c. Hoppenfeld,S.(1976) Physical examination of the spine and extrimities. Appleton-Century-Croffts.
- d. Konin,J.G.,Wiksten,D.L.,&Lsear J.A. (1977). Special tests for orthopaedic examination. Slack
- e. Gylys. B.A., and Wedding M.E. (1995) Medical terminology- a systems approach, (4th Edition). F.A. Davis.

MPT-II,
SPECIALIZATION- CARDIOPULMONARY CONDITIONS
PAPER CODE MPC201

PHYSIOTHERAPY IN CARDIOPULMONARY CONDITIONS - I

Theory

External Assessment-70

Internal Assessment- 30

Total Marks-100

Pass Marks-50% in each

Time- 3 hrs

COURSE OBJECTIVE:

1. Learn the ability to perform an appropriate subjective and physical examination, with development of suitable analytical skills to evaluate data obtained.
2. Document patients with scale, out come measures and asses the progression. Use recent Technique/ approaches to treat & train patients with cardio-respiratory dysfunction in children, adults & geriatrics.

SECTION A Cardiopulmonary Physiotherapy Techniques

- I. Percussion, Vibration, Shaking, Quick Stretch
- II. Postural drainage
- III. Huffing & Coughing
- IV. Suctioning procedure
- V. Active cycle of breathing
- VI. Autogenic Drainage
- VII. Glossopharyngeal, Breathing, Pursed Lip breathing, relaxed breathing, segmental breathing, indications for each technique
- VIII. Body positioning.
- IX. Respiratory muscle training
- X. Blood pressure & pulse monitoring with a subject at rest and during activity
- XI. Rate of perceived exertion scale and use in the formulation of exercise prescription
- XII. Technique for facilitating ventilatory pattern.
- XIII. Burgers Exercise

SECTION B

- I. Technique for Cardio pulmonary Resuscitation,
- II. Shock management
- III. Stretcher use-Handling and transfer
- IV. Shoulder and thoracic mobility exercise.
- V. Intermittent compression for lymphatic disorders
- VI. Oxygen therapy and humidification, oxygen toxicity.

- VII. Instillation
- VIII. Nebulization
- IX. Aerosol therapy
- X. Incentive spirometry

SECTION C: Current Concepts in Cardiopulmonary Physiotherapy

- I.** Role of nutrition in prevention of disease of heart and lung
- II.** Role of physical activity in disease prevention
- III.** Health club & Fitness; the concept behind healthy living
- IV.** Current concept in examination & treatment of pulmonary disease
 - 1. Exercise testing and exercise prescription in patients with pulmonary disorders.
 - 2. Current trends in pulmonary rehabilitation.
 - a. aerobic training
 - b. Strength training.
 - c. Exercise progression
 - d. Program duration
 - e. Home exercise program
 - f. Multi specialty team approach
 - g. Patient education & counseling
 - h. Work & recreation

V. Role of physiotherapy in pulmonary rehabilitation

- 1. Physical rehabilitation for ventilatory dependent patients
- 2. P.T for neonate with respiratory disease
- 3. P.T for child with respiratory disease
- 4. Conditioning for children with lung dysfunction

VI. Current concept in examination & treatment of Cardiac diseases:

- 1. Exercise testing & Exercise prescription in patients with heart disease
- 2. cardio pulmonary conditioning.
- 3. Current trends in cardiac rehabilitation.
 - a. Contraindications for exercise program
 - b. Orthostatic hypotension.
 - c. Home exercise program
 - d. Strength training & patients with positive exercise tolerance test
 - e. Conditioning & deconditioning effect
 - f. Patient education & counseling
 - g. Work & recreation

VII. Role of physiotherapy in Cardiac rehabilitation:

- 1. Philosophy & structure of Cardiac rehabilitation program.
- 2. Program design for cardiac rehabilitation
 - a. Inpatient rehab
 - b. Out patient rehab
 - c. Safety limits

Books Suggested:

1. Manual of Cardiac Rehabilitation: Dr. Peeyush Jain & Dr. R. Panda.
2. The steps to a healthy heart: Kowalski R.E.
3. Medicine: Davidson2. Surgery: Love and Bailey.
4. The steps to a healthy heart: Kowalski R.E
5. Cash textbook of general medical and surgical conditions for physiotherapists- Donnie Jaypee Brothers.
6. Essential of Cardiopulmonary Physical Therapy- Hillegass & Sadoswaky- W.b Saunders.
7. Cash textbook of chest, heart and vascular Disorders for Physiotherapists- Downie- J.P. Brothers.
8. The Brompton Guide to chest physical therapy
9. Cardiopulmonary Physical Therapy- Irwin and Tecknin, Mosby
10. Cardiovascular/Respiratory physiotherapy- Smith & Ball- Mosby
11. ACSM Guidelines for exercise testing and prescription – ACSM- Williams and Wilkins.
12. Chest Physiotherapy in Intensive Care Unit- Mackenze et al- Williams and Wilkins.

PAPER CODE MPC202
PHYSIOTHERAPY IN CARDIOPULMONARY CONDITIONS II

Theory

External Assessment-70

Internal Assessment- 30

Total Marks-100

Pass Marks-50% in each

Time- 3 hrs

COURSE OBJECTIVE:

1. Be able to identify, discuss & analyse, the various cardio-respiratory dysfunction & correlate the same with the provisional diagnosis, routine radiological & Electrophysiological investigations and arrive at appropriate functional diagnosis with clinical reasoning. Further develop clinical reasoning that incorporates theoretical concept with evidence based practice in the field of cardio-pulmonary physiotherapy.

SECTION A: Medical & Surgical Conditions of Heart, Lung & Vascular System

- I. Definition, Causes, pathophysiology, signs & symptoms, management of the following Medical Respiratory Conditions:
 1. Asthma
 2. Chronic bronchitis
 3. Emphysema
 4. Pneumonia
 5. T.B.
 6. Empyema
 7. Pleural effusion
 8. Bronchiectasis
 9. Pulmonary embolism
- II. Definition, Causes, pathophysiology, signs & symptoms, management of the following Medical cardiac condition:
 1. Congestive Cardiac Failure
 2. Valvular Disease
 3. Ischaemic Heart Disease
 4. MI And Coronary Care
 5. Rheumatic Fever/ Rheumatic heart disease
 6. Congenital heart diseases
 7. Pulmonary and Systemic hypertension
 8. Phlebothrombosis
 9. Raynaud's disease
 10. Buerger's disease
 11. Varicose veins and ulcers

12. Venous thrombosis/Deep vein thrombosis

SECTION B

I. Preoperative – post operative testing/assessment, Surgical Management of the following pulmonary surgeries:

1. Thoracoscopy
2. Lobectomy
3. Pneumonectomy
4. Thoracotomy
5. Plerodesis
6. Pleurectomy
7. Blebectomy
8. Lung resection
9. Segmental resection

II. Preoperative – post operative assessment, physiotherapy I Management of the following Cardiac surgeries

1. Coronary artery bypass Grafting
2. Aneurysmectomy
3. Pericardiectomy
4. Repair of septal Defect

Books suggested

1. Manual of Cardiac Rehabilitation: Dr. Peeyush Jain & Dr. R. Panda
2. The steps to a healthy heart: Kowalski R.E
3. Medicine: Davidson 2. Surgery: Love and Bailey
4. The steps to a healthy heart: Kowalski R.E
5. Cash textbook of general medical and surgical conditions for physiotherapists- Donnie Jaypee Brothers.
6. Essential of Cardiopulmonary Physical Therapy- Hillegass & Sadoswaky- W.b Saunders.
7. Cash textbook of chest, heart and vascular Disorders for Physiotherapists- Downie- J.P. Brothers.
8. The Brompton Guide to chest physical therapy
9. Cardiopulmonary Physical Therapy- Irwin and Tecknin, Mosby
10. Cardiovascular/Respiratory physiotherapy- Smith & Ball- Mosby
11. ACSM Guidelines for exercise testing and prescription – ACSM- Williams and Wilkins.
12. Chest Physiotherapy in Intensive Care Unit- Mackenze et al- Williams and Wilkins.

PAPER CODE MPC 203
PHYSIOTHERAPY IN ICU

Theory

External Assessment-70

Internal Assessment- 30

Total Marks-100

Pass Marks-50% in each

Time- 3 hrs

SECTION A

- I. General management of the critically ill in the Intensive care unit.
- II. Equipment and monitoring devices used in the unit
- III. Care of the unconscious patient
- IV. Care of the patients with mechanical ventilation
- V. Social – psychological impact on patient and family
- VI. Social – psychological impact of ICU work on the physiotherapist
- VII. Special precaution for the following condition during physiotherapy treatment
 - i. Cardiac disease
 - ii. Congestive heart failure
 - iii. Carbondioxide retention
 - iv. Adult respiratory distress syndrome
 - v. Plural effusion
 - vi. Pulmonary embolism
 - vii. Hemoptysis
 - viii. Increased Intra cranial pressure

SECTION B

- I. Physiotherapy management in neonatal I.C.U.
- II. Management of endotracheal tubes, tracheal suctioning, subclavian lines & chest tubes
- III. Mechanical Ventilation
 - 1. Types of mechanical ventilator.
 - 2. Physiological effects
 - 3. Indication and contraindication.
 - 4. Complication.
 - 5. Weaning the patients from ventilation.
 - 6. Extubation & post extubation care.
 - 7. Symptoms of hypoxia & carbondioxide narcosis.

Books suggested

- 1. Manual of Cardiac Rehabilitation: Dr. Piyush Jain & Dr. R. Panda
- 2. The steps to a healthy heart: Kowalski R.E
- 3. Medicine: Davidson 2. Surgery: Love and Bailey
- 4. Cash textbook of general medical and surgical conditions for physiotherapists- Donnie Jaypee Brothers.

5. Essential of Cardiopulmonary Physical Therapy- Hillegass & Sadoswaky- W.b Saunders.
6. Cash textbook of chest, heart and vascular Disorders for Physiotherapists- Downie- J.P. Brothers.
7. The Brompton Guide to chest physical therapy
8. Cardiopulmonary Physical Therapy- Irwin and Tecknin, Mosby
9. Cardiovascular/Respiratory physiotherapy- Smith & Ball- Mosby
10. ACSM Guidelines for exercise testing and prescription – ACSM- Williams and Wilkins.
11. Chest Physiotherapy in Intensive Care Unit- Mackenze et al- Williams and Wilkins.

PAPER CODE MPC204
ASSESSMENT AND EVALUATION IN CARDIOPULMONARY
CONDITIONS

Theory

External Assessment-70

Internal Assessment- 30

Total Marks-100

Pass Marks-

50% in each

Time- 3 hrs

Course objectives:

After the completion of this subject the students will be able to:

1. Understand the importance of assessment and evaluation.
2. Evaluate the patient condition and document it.
3. Clinically Exam the Reliability & Validity of the tests, Investigative Procedures
4. Understand the general principles of assessment.
5. Develop the skill of taking objective and subjective assessment of cardiac and pulmonary conditions

SECTION A

- I. Importance of assessment & evaluation,
- II. Methods of evaluation and documentation
- III. Clinical Examination, Reliability & Validity of the tests, Investigative Procedures
- IV. General principle of assessment. Evaluations and documentations
- V. History taking objective assessment
- VI. Subjective assessment investigations, documentation
- VII. Examination of heart: clinical examinations
- VIII. Heart rate monitoring, ECG, echo cardiography
- IX. Exercise Tolerance Tests, Treadmill Testing.

SECTION B

- I. Examination of respiratory system:
 1. Clinical examination,
 2. Pulmonary function tests,

3. The history. A.B.G. (Acid Base Gas) analysis
 4. Bronchography
- II. Examination of vascular system,
- III. Clinical examination of vascular system: Lipid profile, Angiography, Color Doppler

Books suggested

1. Manual of Cardiac Rehabilitation: Dr. Peeyush Jain & Dr. R. Panda
2. The steps to a healthy heart: Kowalski R.E
3. Medicine: Davidson2. Surgery: Love and Bailey
4. Cash textbook of general medical and surgical conditions for physiotherapists- Donnie Jaypee Brothers.
5. Essential of Cardiopulmonary Physical Therapy- Hillegass & Sadoswaky- W.b Saunders.
6. Cash textbook of chest, heart and vascular Disorders for Physiotherapists- Downie- J.P. Brothers.
7. The Brompton Guide to chest physical therapy
8. Cardiopulmonary Physical Therapy- Irwin and Tecknin, Mosby
9. Cardiovascular/Respiratory physiotherapy- Smith & Ball- Mosby
10. ACSM Guidelines for exercise testing and prescription – ACSM- Williams and Wilkins.
11. Chest Physiotherapy in Intensive Care Unit- Mackenze et al- Williams and Wilkins.

MPT-II
SPECIALIZATION- OBSTETRICS & GYNECOLOGY CONDITIONS

PAPER CODE- MPG201
PHYSIOTHERAPY IN OBSTETRICS &
GYNECOLOGY CONDITIONS - I

Theory

External Assessment-70

Internal Assessment- 30

Total Marks-100

PassMarks-50%

Time- 3hrs

Unit –I, Introduction about women’s health

- i. Components of Women’s Health
- ii. Health education and health promotion: The Physiotherapist’s role.
- iii. Anatomy and Physiology of Female Reproductive System

Unit –II, Physiotherapy interventions in Adolescence

- i. Significant changes during Adolescence
- ii. Physiotherapy intervention in Obesity
- iii. Physiotherapy intervention in Pre Menstrual Syndrome
- iv. Physiotherapy intervention for Amenorrhea and Dysmenorrhea
- v. Physiotherapy intervention in Urinary Incontinence

Unit –III, Physiotherapy interventions in child bearing years

- i. Physiological changes pregnancy in labor and the puerperium
- ii. Physiotherapy intervention in obstetrics and gynecological disorders
- iii. Physiotherapy intervention in different stages of pregnancy
- iv. Physiotherapy intervention in stages of labor
- v. Physiotherapy intervention in Underwater delivery and Pain free delivery
- vi. Physiotherapy intervention in managing complications during pregnancy and post pregnancy
- vii. Physiotherapy intervention for gestational diabetes and hypertension and their complications
- viii. Physiotherapy intervention for various Musculoskeletal problems

Books Reference:

- 1.The Healthy Woman: A Complete Guide for All Ages- 1st edition. HHS office on women's health. US. Department of Health and Human Services 2008
- 2.Physiotherapy in Obstetrics and Gynaecology. 1st edition. Mantle J, Polden M.
- 3.Butterworth- Heinemann publications.
- 4.Women's Sports Medicine and Rehabilitation- 1st edition. Swedan N. An Aspen Publication 2001.
- 5.The Female Athlete- 1st edition. Ireland M; Nattiv A. Saunders Publication 2002
- 6.Textbook of Female Urology and Urogynaecology- 3rd edition. *Cardozo L; Staskin D*. CRC press 2010.
- 7.Women's Health: A Textbook for Physiotherapists. 1st edition.Sapsford R, Markwell S; Bullock-Saxton J. WB Saunders Company Ltd.
- 8.Evidence-Based Physical Therapy for the Pelvic Floor: Bridging Science and Clinical Practice- 1st edition. Bo, K., Berghmans, L.C.M., Van Kampen, M., Morkved, S. Churchill Livingstone 2007.
- 9.The new Harvard guide to womens health- 1st edition. Carlson KJ; Eisenstat SA; Ziporyn T. Belknap Press 2004.
10. Physiopedia and e journals

PAPER CODE- MPG202
PHYSIOTHERAPY IN OBSTETRICS & GYNECOLOGY
CONDITIONS -II

Theory

External Assessment-70

Internal Assessment- 30

Total Marks-100

Pass Marks-

50% in each

Time- 3 hrs

UNIT-I, Physiotherapy interventions in Older Women

- i. Physiotherapy intervention in complications of Ageing
- ii. Physiotherapy intervention in Prolapse.
- iii. Physiotherapy intervention for Cardiovascular conditions in women
- iv. Physiotherapy intervention for Hypertension in women
- v. Physiotherapy intervention in Cancers commonly affecting women
- vi. Physiotherapy intervention during Menopause and the Climacteric
- vii. Physiotherapy intervention for Osteopenia and Osteoporosis

UNIT-II, Physiotherapy intervention after gynecological surgeries.

- i. Hysterectomy
- ii. After delivery with Episiotomy
- iii. After birth with Symphysiolysis
- iv. Caesarean Section
- v. After surgical intervention in Ectopic pregnancy
- vi. Oncological conditions
- vii. Stress incontinence

UNIT-III, Common obstetrics and gynaecological problems

- i. Caesarean
- ii. Hysterectomy
- iii. D&E
- iv. MTP
- v. Tubectomy
- vi. Prevention of thromboembolism
- vii. Post surgical complications
- viii. Oncological Conditions

Book references

1. Physiotherapy in Obstetrics and Gynaecology. 1st edition. Mantle J, Polden M. Butterworth- Heinemann publications.
2. Women's Sports Medicine and Rehabilitation- 1st edition. Swedan N. An Aspen Publication 2001.
3. The Female Athlete- 1st edition. Ireland M; Nattiv A. Saunders Publication 2002
4. Textbook of Female Urology and Urogynaecology- 3rd edition. *Cardozo L; Staskin D.* CRC press 2010.
5. Women's Health: A Textbook for Physiotherapists. 1st edition. Sapsford R, Markwell S; Bullock–Saxton J. WB Saunders Company Ltd.
6. Evidence–Based Physical Therapy for the Pelvic Floor: Bridging Science and Clinical Practice- 1st edition. Bo, K., Berghmans, L.C.M., Van Kampen, M., Morkved, S. Churchill Livingstone 2007.
7. The Healthy Woman: A Complete Guide for All Ages- 1st edition. HHS office on women's health. US. Department of Health and Human Services 2008
8. Physiotherapy in Obstetrics and Gynaecology. 1st edition. Mantle J, Polden M. Butterworth- Heinemann publications.
9. Women's Sports Medicine and Rehabilitation- 1st edition. Swedan N. An Aspen Publication 2001.
10. The Female Athlete- 1st edition. Ireland M; Nattiv A. Saunders Publication 2002
11. Textbook of Female Urology and Urogynaecology- 3rd edition. *Cardozo L; Staskin D.* CRC press 2010.
12. Women's Health: A Textbook for Physiotherapists. 1st edition. Sapsford R, Markwell S; Bullock–Saxton J. WB Saunders Company Ltd.
13. Evidence–Based Physical Therapy for the Pelvic Floor: Bridging Science and Clinical Practice- 1st edition. Bo, K., Berghmans, L.C.M., Van Kampen, M., Morkved, S. Churchill Livingstone 2007.
14. The new Harvard guide to women's health- 1st edition. Carlson KJ; Eisenstat SA; Ziporyn T. Belknap Press 2004.
15. Physiopedia and e journals

PAPER CODE – MP203
BIOENGINEERING AND REHABILITATION PRINCIPLE

Theory

External Assessment-70

Internal Assessment- 30

Total Marks-100

Pass Marks-

50% in each

Time- 3 hrs

COURSE OBJECTIVES:

- a. To understand the rehabilitation concepts and Rehabilitation team members for future development and applications.
- b. To study and understand various Principles of Rehabilitation Engineering, types of Therapeutic Exercise Technique, various orthotic devices and prosthetic devices to overcome orthopedic, neurological problems.

SECTION A

- I. Conceptual framework of rehabilitation, roles of rehabilitation team members, definitions and various models of rehabilitation. International classification of functioning
- II. Epidemiology of disability with emphasis on locomotor disability, impact of disability on individual, family, and society. Psychological aspects and adjustment during rehabilitation of disabled
- III. Preventive aspects of disability and organizational skills to run disability services
- IV. **Model of service delivery** : feature , merits and demerits of institutional based rehabilitation , out reach programmes, Community based rehabilitation
- V. **Legal Aspect in Disabilities**: PWD act , national trust act , RCI act, Statutory provisions Schemes of assistance to persons with disabilities
- VI. Govt and NGO participation in disability RCI
- VII. Principles of Orthotics- types, indications, contra indications, assessment (check out), uses and fitting –region wise.
 - a. Orthotics for the Upper Limb
 - b. Orthotics for the Lower Limb
 - c. Orthotics for the Spine
- VIII. **Principles of prostheses**- types, indications, contra indications, assessment (check out), uses and fitting –region wise.

SECTION B

- I. An outline of principles and methods of rehabilitation of speech and hearing disability
- II. An outline of principles and methods of vocational and social rehabilitation
- III. An outline of principles and methods of rehabilitation of mentally handicapped

- IV. An outline of principles , methods and scope occupational therapy
- V. Architectural Barriers: Describe architectural barriers and possible modifications with reference to Rheumatoid Arthritis, CVA, Spinal Cord Injury and other disabling conditions.
- VI. An outline of the principles and process of disability evaluation.

PAPER CODE MPG204
ASSESSMENT AND EVALUATION IN OBSTETRICS &
GYANECOLOGY CONDITIONS

Theory

External Assessment-70

Internal Assessment- 30

Total Marks-100

Pass Marks-

50% in each

Time- 3 hrs

UNIT- I, Introduction of Women Health & Common Conditions

1. External genital.
2. Ovaries, fallopian tubes, uterus and vagina.
3. Blood and nerve supply of genital organs.
4. Endocrine system- Hormonal Changes, & effect on Health.

UNIT-II, Common Gynaecological Conditions:

1. Introduction to Gender differences in Muscle Morphology
2. Other significant anthropometric measurements and Obesity
3. Disorders of mensuration , menorrhagia.DUB menopause , menarche.
4. Pelvic inflammatory disease.
5. Fibroid uterus.
6. Stress incontinent
7. Prolapse uterus

UNIT-III, Medical and surgical management in various associated conditions.

1. Medical And Surgical Management in Athletes Triad
2. Medical And Surgical Management in Pelvic Inflammatory Disease
3. Medical And Surgical Management in conditions occurring in Older Women Medical And Surgical Management in Cardiovascular Problems
4. Medical And Surgical Management in Hypertension
5. Medical And Surgical Management in Diabetes
6. Medical And Surgical Management in breast cancer or after mastectomy

UNIT-IV, Medical and surgical management of conditions occurring in Child bearing years.

1. Pelvic floor weakness:
2. Vaginal examination
3. Gynecological excision surgery including mastectomy.
4. Gynecological repair surgery
5. Surgical treatment of stress incontinence

UNIT-V, Antepartum Haemorrhage (APH) & Postpartum Haemorrhage (PPH)

1. Introduction,
2. Aetiology,
3. management.

Book references

16. Physiotherapy in Obstetrics and Gynaecology. 1st edition. Mantle J, Polden M. Butterworth- Heinemann publications.
17. Women's Sports Medicine and Rehabilitation- 1st edition. Swedan N. An Aspen Publication 2001.
18. The Female Athlete- 1st edition. Ireland M; Nattiv A. Saunders Publication 2002
19. Textbook of Female Urology and Urogynaecology- 3rd edition. *Cardozo L; Staskin D.* CRC press 2010.
20. Women's Health: A Textbook for Physiotherapists. 1st edition. Sapsford R, Markwell S; Bullock–Saxton J. WB Saunders Company Ltd.
21. Evidence–Based Physical Therapy for the Pelvic Floor: Bridging Science and Clinical Practice- 1st edition. Bo, K., Berghmans, L.C.M., Van Kampen, M., Morkved, S. Churchill Livingstone 2007.