

Branch Name:	BPT
Program Code:	PT101
Course Title:	Fundamentals Of Exercise Modalities (FoEM)
Course Code:	3PT1010104
Pre-requisite Course:	-

Teaching and Examination Scheme:

Teaching Scheme			Evaluation Scheme (Marks)				
Lecture (L)	Practical (P)	Credit	Theory (Marks)		Practical (Marks)		Total (Marks)
			University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	
120	60	10	80	20	80	20	200

Course Outcomes:

After completion of this course the student shall be able to General and Clinical Psychology

1. Apply the principles of physics in describing movements (Force, inertia, Laws of motion) (KH)
2. Explain planes and axis of movements (KH)
3. Discuss the methods of measuring joint movements (KH)
4. Demonstrate joint movement measurements (Including electronic goniometer) (SH)
5. Demonstrate fundamental and derived positions and muscle actions (SH)
6. Demonstrate transfer techniques (SH)
7. Perform basic assessment techniques (Motor, sensory, coordination and balance) (SH)
8. Demonstrate knowledge and skills in prescribing basic movement aids (SH)

Course Contents: B.P.T. FoEM 104 (L)

UNIT 1: Basic principles

FoEM 1.1. Describe the aims of Exercise Therapy, The techniques of Exercise Therapy, Approach to patient's problems, and Assessment of patient's condition – Measurements of Vital parameters

FoEM 1.2. Apply the principles of mechanics applied to Exercise Therapy: Force, Composition, Resolution, Equilibrium- stable, unstable, neutral gravity-LOG-COG, levers-types, Speed, velocity, work, energy, power, acceleration, momentum, friction and inertia

FoEM 1.3. Discuss Muscle work group action of muscles, angle of pull and mechanical efficiency of the muscles.

Unit 2: Starting and Derived Positions

FoEM 2.1 Demonstrate the starting positions, their muscle work, effects and uses and Standing, Kneeling, Sitting, Lying and Hanging.

FoEM 2.2 Demonstrate derived positions. Discuss the muscle work of each derived position

FoEM 2.3 Demonstrate Different methods of measuring range of motion (ROM).

FoEM 2.4 Discuss Reliability and validity of goniometry. Functional ROM and normal range of motion of various joint. Technique of Goniometry.

FoEM 2.5 Perform ROM measurement of individual joint's using goniometer.

Unit 3: Muscle testing

FoEM 3.1 Discuss the Principles & Aims, Indications & Limitations, and Techniques of MMT for group & individual testing.

FoEM 3.2 Demonstrate Manual Muscle testing procedure.

FoEM 3.3 Perform MMT for upper limb, lower limb spine and face muscles.

Unit 4: Classification of therapeutic exercise

FoEM 4.1. Classify therapeutic exercises: Technique, effects, therapeutic use

FoEM 4.2. Demonstrate Active Movements

FoEM 4.3. Discuss active movements in terms of Definition of strength, power & work, endurance, muscle actions, Causes of decreased muscle performance,

FoEM 4.4. Explain the Physiological adaptation to training: Strength & Power, Endurance.

FoEM 4.5. Demonstrate Free exercise: Classification, principles, techniques, indications, contraindications, effects and uses

FoEM 4.6. Demonstrate Active Assisted Exercise:

FoEM 4.7. Discuss the principles, techniques, indications, contraindications, effects and uses, Assisted-Resisted Exercise: principles, techniques, indications, contraindications, effects and uses.

FoEM 4.8. Demonstrate Resisted Exercise: Discuss the principles, indications, contraindications, precautions & techniques, effects and uses Types of resisted exercises: Manual and Mechanical resistance exercise, Isometric exercise, Dynamic exercise: Concentric and Eccentric, Dynamic exercise: Constant versus variable resistance, Isokinetic exercise, Open-Chain and Closed-Chain exercise.

FoEM 4.9. Demonstrate Passive Movements: Discuss Causes of immobility, Classification of Passive movements, Specific definitions related to passive movements, Principles of giving passive movements, Indications, contraindications, effects of uses, Techniques of giving passive movements demonstrate Mobilization exercises of the joint's region-wise- Passive, active Movements.

Unit 5:

FoEM 5.1 Classify various types of soft tissue manipulation techniques.

FoEM 5.2 Discuss Physiological effects, therapeutic effects and contraindications of soft tissue manipulation.

FoEM 5.3 Describe effleurage, stroking, kneading, petrissage, deep friction, vibration and shaking etc.

FoEM 5.4 Perform effleurage, stroking, kneading, petrissage, deep friction, vibration and shaking etc.

PRACTICAL B.P.T. Fundamentals of Exercise Modalities 104 Practical : FoEM (P)

The students of exercise therapy are to be trained in Practical Laboratory work for all the topics Discussed in theory. List of practical (student shall be able to perform independently)

6.1. Demonstrate the different types of muscle contraction, muscle work, group action of muscles and co-coordinated movements on self

6.2. Demonstrate various fundamental and derived positions. And describe muscle work, and uses on self

- 6.3. Measure the ROM of joints using hand held goniometer – upper limb, lower limb & trunk on human model
- 6.4. Demonstrate the relaxed passive movement of joints of upper limb and lower limb on human model
- 6.5. Instruct the patient to perform of the active mobilisation exercises of joints of upper limb and lower limb on human model
- 6.6. Perform passive mobilisation exercises of different joints region wise on self / human model
- 6.7. Demonstrate the testing of muscle strength/ function region wise – upper limb, lower limb and trunk on human model
- 6.8. Perform all the soft tissue manipulative techniques region wise – upper limb, lower limb, neck, back and face on human model
- 6.9. Demonstration ONLY [to be shown to the student by the teacher]
 1. Digital goniometry
 2. Pelvic inclinometry
 3. Dynamometry

Accessory passive movement

Text Books:

1. Principle of Exercise Therapy -Gardiner - C.B.S. Delhi
2. Practical Exercise Therapy - Hollis - Blackwell Scientific Publications.
3. Therapeutic Exercises Foundations and Techniques - Kisner and Colby -F.A. Davis.
4. Principles and practices of therapeutic massage – Sinha 3rd edition. Jaypee brothers Delhi
5. Margaret Hollis-Textbook of Massage.
6. Muscle testing and functions - Kendall - Williams & Wilkins.
7. Daniels and Worthingham's - Muscle testing - Hislop & Montgomery - W.B. Saunders.
8. Measurement of Joint Motion: A Guide to Goniometry - Norkins& White - F.A. Davis.

Reference Books:

1. Therapeutic Exercises - Basmajian - Williams and Wilkins.
2. Licht SH, editor. Massage, manipulation, and traction. E. Licht;
3. World Health Organization; Global Strategy on Diet, Physical Activity and Health
4. McArdle WD, Katch FI, Katch VL. Exercise physiology: nutrition, energy, and human
5. performance. Lippincott Williams & Wilkins; 2010.
6. Kennedy-Armbruster C, Yoke M. Methods of group exercise instruction. Human Kinetics; 2014.
7. ACSM's Guidelines for Exercise Testing and Prescription

List of Open-Source Software/learning website:

- k-hub.in e library/A single platform for all e resources (K-hub, E Resource)
 - User Name- KB4605VNG
 - Password- BL@69BX!
- knowledgegainer.delnet.in (Delnet, E Resource)
 - User Name-gjspum
 - Password- spu10924

Mapping of CO with PO:

Course Outcomes	Program Outcomes (POs)										
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	M										
CO2		M									
CO3			M							M	
CO4				M							
CO5					M			M			
CO6											M
CO7							M		H		
CO8						H					M

H:High, M:Medium, L:Low