**Dr. D.Y. PATIL COLLEGE OF PHYSIOTHERAPY**
**Dr. D.Y.PATIL VIDYAPEETH, PUNE**
(DEEMED UNIVERSITY)
(Accredited by NAAC with 'A' grade)

## LESSON PLAN

**Subject** : **Physical Diagnosis and Manipulative Skills**
Class : BPT III year (2016-17)
Class Incharge : Dr. Mayura Deshmukh (PT)
Subject Teacher/s : Dr. Sanjivani Dhote (PT), Dr. Vishnuvardhan (PT), Dr. Megha(PT)

| Sr. No | Topic | Hours of Lectures | Mode of Teaching |
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| **HUMAN DEVELOPMENT, GROWTH & AGING PROCESS** | | | |
| 1 | Introductory lecture-PDMS<br>Syllabus Discussion | 1 | PPT and Blackboard |
| 2 | Factors Influencing Human development and growth<br>1. Physical 2. Motor 3. Sensory 4. Cognitive 5. Emotional 6. Cultural 7. Social Maturation | 2 | |
| 3 | Factors Influencing human development and growth<br>1. Biological 2. Environmental 3. Inherited | 1 | |
| 4 | Principles of Maturation:<br>1. In General<br>2. 2. Anatomical Directional Pattern | 1 | |
| 5 | Oromotor Development | 1 | |
| 6 | Sensory development | 1 | |
| 7 | Neuromotor Development of Hand Function | 1 | |
| **ELECTRODIAGNOSIS** | | | |
| 8 | Physiology of RMP, Action Potential,<br>Propogation of Action Potential, Volume Conduction | 2 | PPT, Blackboard and Hands-on |
| 9 | Physiology of Muscle contraction<br>Motor Unit and Recruitment pattern of motor unit-Size Principle | 2 | |
| 10 | Therapeutic current –as a tool for electro diagnosis (Theory)<br>1. Physiologic Principles<br>2. Sensory and Pain Threshold<br>3. Tests for Pain Tolerance | 2 | |
| 11 | Therapeutic current –as a tool for electro diagnosis (Practical)<br>1. Faradic Galvanic Test, Strength Duration Curve & its interpretation<br>2. Sensory and Pain Threshold | 6 | |

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| | 3. Tests for Pain Tolerance | | |
| 12 | Electroneuromyography : Basic Principles | 1 | PPT, Blackboard and Hands-on |
| 13 | NCV - Basic instrumentation | 1 | |
| 14 | Normal NCV | 1 | |
| 15 | Abnormal NCV | 1 | |
| 16 | MNCV Upper limb (Theory) | 1 | |
| 17 | MNCV Upper limb (Practical) | 4 | |
| 18 | MNCV Lower limb (Theory) | 1 | |
| 19 | MNCV Lower limb (Practicals) | 3 | |
| 20 | SNCV for Upper limb (Theory) | 1 | |
| 21 | SNCV for Upper limb (Practicals) | 3 | |
| 22 | SNCV for Lower limb(Theory) | 1 | |
| 23 | SNCV for Lower limb (Practicals) | 3 | |
| 24 | EMG Instrumentation:<br>Basic components like CRO, Filter, Amplifier and Pre-Amplifier, Types of Electrodes | 2 | PPT, Blackboard and Hands-on |
| 25 | EMG Normal:<br>1. At Rest<br>2. On minimal Contraction<br>3. On maximal contraction | 2 | PPT, Blackboard and Hands-on |
| 26 | EMG Abnormal Findings | 2 | PPT, Blackboard and Hands-on |
| **FUNCTIONAL ANALYSIS AND MANIPULATIVE SKILLS** | | | |
| 27 | Musculoskeletal Assessment: SOAP format:<br>1. Assessment of Posture<br>2. Assessment of Gait<br>3. Selective Tissue tension testing<br>4. Tightness Testing<br>5. Observational Movement Analysis<br>6. Analysis of muscle work<br>7. Use of outcome Measures | 7 | PPT, Blackboard and Hands-on |
| 28 | Assessment of Hand Function | 2 | PPT, Blackboard and Hands-on |
| 29 | Assessment of Pain : subjective and Objective Measures | 2 | PPT, Blackboard and Hands-on |

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| 30 | Basic Principles, indications, contra-indications of Maitland | 1 | PPT, Blackboard and Hands-on |
| 31 | Basic Principles, indications, contra-indications of Kaltenborn | 1 | |
| 32 | Basic Principles, indications, contra-indications of Cyriax | 1 | |
| 33 | Basic Principles, indications, contra-indications of Mulligan | 1 | |
| 34 | Basic Principles, indications, contra-indications of Mckenzie | 1 | |
| 35 | Basic Principles, indications, contra-indications of MET | 1 | |
| 36 | Basic Principles, indications, contra-indications of Myofascial Stretching | 1 | |
| 37 | Basic Principles, indications, contra-indications of Butler's Neural Mobilisation and Neurodynamics | 1 | |
| 38 | Upper Limb Neural Mobilization (Practicals) | 3 | |
| 39 | Lower Limb Neural Mobilization (Practicals) | 3 | |
| 40 | Mulligan practical for shoulder joint | 4 | |
| 41 | Mulligan practical for elbow and wrist joint | 4 | |
| 42 | Mulligan practical for Hip joint | 4 | |
| 43 | Mulligan practical for knee and ankle joint | 4 | |
| 44 | Maitland practical for shoulder joint | 4 | |
| 45 | Maitland practical for Elbow and wrist joint | 4 | |
| 46 | Maitland practical for Hip joint | 4 | |
| 47 | Maitland practical for knee and ankle joint | 4 | |
| 48 | Special Tests for Shoulder joint (Theory) | 2 | |
| 49 | Special Tests for Shoulder joint (Practicals) | 3 | |
| 50 | Special Tests for Elbow joint (Theory) | 2 | |
| 51 | Special Tests for Elbow joint (Practical) | 3 | |
| 52 | Special Tests for Wrist joint (Theory) | 2 | |
| 53 | Special Tests for Wrist joint (Practical) | 3 | |
| 54 | Special Tests for HIP joint (Theory) | 2 | |
| 55 | Special Tests for HIP joint (Practical) | 3 | |
| 56 | Special Tests for Knee joint (Theory) | 2 | |
| 57 | Special Tests for Knee joint (Practical) | 3 | |
| 58 | Special Tests for Ankle joint (Theory) | 2 | |
| 59 | Special Tests for Ankle joint (Practical) | 3 | |
| 60 | Functional diagnosis using ICF | 1 | |
| 61 | Interpretation of X-Ray of extremities | 1 | |
| 62 | Interpretation of X-Ray of Spine | 1 | |
| 63 | Interpretation of Biochemical investigations | 1 | |
| **NEURO THERAPEUTIC SKILLS** | | | |
| | Assessment of Neuromuscular Function:<br>1. Assesment of Higher Mental Function<br>2. Assessment of cranial Nerves<br>3. Sensory Examination | | |

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| 64 | 4. Motor Examination<br>5. Examination of Joint Mobility and Body image<br>6. Assessment of tone and Reflexes<br>7. Assessment of voluntary control<br>8. Examination of co-ordination<br>9. Examination of Balance and Endurance<br>10. Examination of Posture and Gait<br>11. Scales : berg Balance, ashworth, Glasgow coma, DGI | 7 | PPT, Blackboard and Hands-on |
| 65 | Functional diagnosis using ICF, Interpretation of Electro diagnostic findings, routine biochemical investigations. | 1 | PPT, Blackboard |
| 66 | Principles, Indications and Application of NDT | 1 | PPT, Blackboard and Hands-on |
| 67 | Practicals on NDT approach | 4 | |
| 68 | Principles, Indications and Application of Rood's approach | 1 | |
| 69 | Practicals on Rood's approach | 4 | |
| 70 | Principles, Indications and Application of PNF | 1 | |
| 71 | Practicals on PNF approach | 4 | |
| 72 | Principles, Indications and Application of Brunnstorm | 1 | |
| 73 | Practicals on Brunnstorm approach | 4 | |
| 74 | H Reflex, F wave, Blink Reflex | 2 | |
| **PAEDIATRIC EVALUATION** | | | |
| 75 | Paediatric Evaluation (Theory)<br>1. General Paediatric assessment<br>2. Assessment of Head and Chest Circumference<br>3. Assessment of Height and Weight<br>4. Assessment of Reflexes and Milestones | 2 | PPT, Blackboard and Hands-on |
| 76 | Paediatric Evaluation (Practical)<br>1. General Paediatric assessment<br>2. Assessment of Head and Chest Circumference<br>3. Assessment of Height and Weight<br>4. Assessment of Reflexes and Milestones | 4 | |
| **CARDIO-PULMONARY SKILLS** | | | |
| 77 | Assessment of Cardio-vascular system (Theory)<br>1. Vital parameters<br>2. Chest expansion<br>3. Symmetry of chest movement<br>4. Breath holding test<br>5. Breath sounds<br>6. Rate of Perceived exertion<br>7. Quality of life Questionnaires<br>8. Exercise Tolerance and 6 min walk test<br>9. Bruce protocol and Peak Flow Meter<br>10. Interoretation of ABG. PFT, ECG<br>11. X-Ray Chest : Normal and Abnormal<br>12. Test for Peripheral arterial circulation | 7 | PPT, Blackboard and Hands-on |

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| | 13. Tests for venous circulation and Ankle Brachial Index | | |
| 78 | Assessment of cardio-vascular system (Practical):<br>1. Vital parameters<br>2. Chest expansion<br>3. Symmetry of chest movement<br>4. Breath holding test<br>5. Breath sounds<br>6. Rate of Perceived exertion<br>7. Quality of life Questionnaires<br>8. Exercise Tolerance and 6 min walk test<br>9. Bruce protocol and Peak Flow Meter<br>10. Interoretation of ABG. PFT, ECG<br>11. X-Ray Chest : Normal and Abnormal<br>12. Test for Peripheral arterial circulation<br>13. Tests for venous circulation and Ankle Brachial Index | 7 | PPT, Blackboard and Hands-on |
| **OBESITY EVALUATION** | | | |
| 79 | Introduction to Obesity | 1 | PPT, Blackboard |
| 80 | Patho-Physiology of obesity | 1 | |
| 81 | Assessment of BMI, waist-Hip ratio | 2 | |

**Total Didactic Hours** **- 90 Hours**
**Total Practicals/Clinicals scheduled** **- 260Hours**
**Total scheduled hours** **= 350 Hours**
**Total Tutorials** **- 10 Hours (as and when required)**
**Total Doubt clearing sessions** **- 5Hours (as and when required)**
**Total hours for the subject** **= 365**