

Course Title	Electrotherapy- II
Course Code	PT502
Course Credit	Lecture: 4
	Practical / Clinical Training: 3
	Total: 7

Course Objective

1. To understand the fundamentals of electrotherapy
2. Select various electro-therapeutic tools and techniques with appropriate skills in management of patients for promotion, prevention and cure of various conditions.
3. Identify indications, & contraindications of various electrotherapeutic modalities and learn its application specificity.

Detailed Syllabus

Sr. No.	Name of chapter & details	Hours Allotted
Section – I		
1	Introduction of low and medium frequency currents Principles and Mechanism of action	2
	Physiological effects and Therapeutic uses on tissue	2
2	NERVE MUSCLE PHYSIOLOGY : Action Potential, Resting membrane potential, Propagation of Action Potential	1
	Motor unit, Synapse, Accommodation	1
	Stimulation of Healthy Muscle, Stimulation of Denervated Muscle	1
	Stimulation for Tissue Repair	1
3	LOW FREQUENCY CURRENTS Basic types of current <ul style="list-style-type: none"> • Direct Current: types, physiological and therapeutic effects. • Alternating Current Types of Current used in Therapeutics	3
	Introduction Modified D.C	

	<ul style="list-style-type: none"> • Faradic Current • Galvanic Current <p>Modified A.C</p> <ul style="list-style-type: none"> • Sinusoidal Current • Diadynamic Current. 	2
4	Faradic Current - Definition, characteristic and modified faradic current Parameters	2
	physiological and therapeutic uses	4
	Procedure of stimulation, Precaution, Dangers	2
	procedure of stimulation, group muscle stimulation, face muscle stimulation	4
	procedure of stimulation UL muscles	4
	procedure of stimulation LL muscles	4
	procedure of stimulation Back muscles	4
	faradic foot bath, Faradism under pressure	6
5	Galvanic Current Definition, characteristics, parameters of stimulation,	2
	physiological and therapeutic uses of stimulation, precautions	3
6	Interrupted Direct current Definition, characteristics, parameters of stimulation	2
	Physiological and therapeutic uses of stimulation, precautions	3
7	Sinusoidal current Definition, characteristic and parameters of stimulation, physiological effects, indications and contraindications and precautions	4
8	Diadynamic currents Definition, physiological and Therapeutic effects and Application	4
9	HVPGS (High-Voltage Pulsed Galvanic Stimulation) Definition, physiological and Therapeutic effects and Application	3
10	Types of Electrical Stimulators <ul style="list-style-type: none"> • NMES- Construction component. • Neuro muscular diagnostic stimulator- construction component • Components and working Principles 	4

	Principles of Application <ul style="list-style-type: none"> • Electrode tissue interface, Tissue Impedance • Types of Electrode, Size and Placement of Electrode – Waterbath, Unipolar, Bi-polar, Electrode coupling • Current flow in tissues, Lowering of Skin Resistance 	2
	Stimulation of individual and group muscles	6
11	ELECTRODIAGNOSIS FG test, SD Curve, Chronaxie and Rheobase measurement	4
	SECTION II	
12	TENS Definition. Types	2
	theories of pain modulation, pain gate theory	4
	Physiological effects and therapeutic uses	4
	principle and procedure of treatment	10
	Indication and contraindication	4
	Dosage, Dangers and Precautions and procedure	4
13	IONTOPHORESIS Definition, Principles	2
	procedure of application	8
	Ions commonly used in iontophoresis and their clinical indication, Physiological effect and Therapeutic effects	8
	Indication and contraindication	3
	Dosage, Dangers and Precautions	2
14	MEDIUM FREQUENCY CURRENTS Interferential Currents - Definition	3
	Production of interferential current	2
	Types (Static and Dynamic) ,Parameters	3
	Indications and Contraindications	3
	Physiological and therapeutic Effects	3
	Dosage , Dangers and Precautions and procedure	12
15	Russian Currents and Rebox Currents	3

Instructional Method:

1. Teaching and training sessions will be carried out through active learning. Active participation and contribution in group discussion and seminars are mandatory for students
2. Lectures to be conducted with the help of black board and/or audio-visual aids that includes multi-media projector, OHP, etc.
3. Problem based and/or case based assignments based on course content will be given to the students at the end of each unit/topic and will be evaluated at regular interval.
4. The course includes a laboratory where the students have an opportunity to build and appreciation for the concepts being taught in lectures.
5. Instruction method will be integrated with clinical training, bedside / class room teaching and tutorials as necessary.

Text books:

1. Clayton's Electrotherapy (theory and practice): 8th edition. Forster A; Palastanga N, AIBS publication.
2. Electrotherapy Explained: 4th edition. Low J; Reed A. B and H Publications 2006.
3. Basis of Electrotherapy- Subhash Khatri. Jaypee brothers 2003.
4. Principle and practice in Electrotherapy: 4th edition. Joseph Kahn, Churchill Livingstone 1999.

Reference Books:

1. Electrotherapy: Evidence Based Practice: 11th edition. Sheila Kitchen. Churchill Livingstone.
2. Physical Agents in Rehabilitation: From Research to Practice: 4th edition. Cameron MH. Saunders



SYLLABUS