

<b>Course Title</b>	<b>ELECTROTHERAPY – I</b>	
<b>Course Code</b>	PT304	
<b>Course Credit</b>	Lecture: 6	
	Practical: 3	
	Clinical Training: 0	
	Total:9	
<b>Course Objective</b>		
<p>On completion of unit students should be able to</p> <ol style="list-style-type: none"> <li>1. To understand the fundamentals of electrotherapy</li> <li>2. Select various electro-therapeutic tools and techniques with appropriate skills in management of patients for promotion, prevention and cure of various conditions.</li> <li>3. Identify indications, contra indications, precautions</li> </ol>		
<b>Detailed Syllabus</b>		
<b>Sr. No.</b>	<b>Name of chapter &amp; Contents</b>	<b>Hours Allotted</b>
<b>Section – I</b>		
<b>1.</b>	<b>INTRODUCTION OF ELECTRICITY AND ELECTROTHERAPY</b>	2
	<b>ELECTROMAGNETIC WAVES</b>	
	Electromagnetic spectrum: Wavelength, Velocity and Frequency	2
	Physical properties of electromagnetic radiations- reflection, refraction, absorption, penetration	2
	Law's: Grothus law, Cosine law, Inverse Square law and its practical application	2
	Cellular biophysics-reception and emission of Electromagnetic signals, Environmental currents and fields- risk factors on prolonged exposure to Electromagnetic field	2
<b>2.</b>	<b>INFRA RED RAYS (IRR)</b>	
	Definition, Production of Infra-Red rays	2
	Types of generators: luminous and non-luminous generators	4
	Method of application	4

	Parameters: Wavelength, Frequency, Penetration, Duration and Frequency of treatment	2
	Method of application with Dosage	1
	Effects: Physiological effects and therapeutic effects	3
	Dangers and Precautions	2
	Indications and Contraindications	2
<b>3.</b>	<b>ULTRA VIOLET RAYS (UVR)</b>	
	Definition, Classification, Production of UVR	2
	UVR generators: High pressure mercury vapour lamp, Water cooled mercury vapour lamp, Kromayer lamp, Fluorescent tube, Theraktin tunnel, PUVA apparatus.	4
	Techniques of application of U. V. R. in local and general irradiation, specific condition like psoriasis, acne, alopecia, indolent wounds	6
	Parameters: Penetration, Absorption, Duration and Frequency of treatment	4
	Effects: Physiological effects and therapeutic effects	2
	Test dosage calculation. Calculation of E1, E2, E3, E4 doses	4
	Filters, sensitizers	2
	Indications and Contraindications	2
	Dangers and Precautions	2
<b>4.</b>	<b>ULTRASOUND</b>	
	Definition, characteristics and mechanism of production	4
	Coupling media	2
	Various methods of application	8
	Parameters: Mode, Intensity, Duration and Frequency of treatment	3
	Method of application with Dosage	1
	Effects: Physiological effects and therapeutic effects	4
	Testing of Apparatus.	4
	Indications and Contraindications	4
	Dangers and Precautions	3
	Phonophoresis and its implications	5
<b>Section – II</b>		
<b>5.</b>	<b>MICRO WAVE DIATHERMY (MWD)</b>	
	Definition, characteristics and mechanism of production	2
	Method of application	4
	Parameters: Wavelength, Frequency, Penetration, Duration and Frequency of treatment	2

	Method of application with Dosage	1
	Effects: Physiological effects and therapeutic effects	3
	Indications and Contraindications	4
	Dangers and Precautions	2
<b>6.</b>	<b>SHORT WAVE DIATHERMY(SWD)</b>	
	Define Short wave, Frequency and Wavelength of SWD	4
	Principle of Production of SWD, Circuit diagram and Production of SWD	4
	Methods of Heat Production by SWD treatment,	4
	Types of electrodes, Placement and Spacing of electrodes, Tuning and Testing of Apparatus	6
	Various methods of application (capacitors field method and cable method etc.) in various conditions	6
	Parameters: Intensity, Duration and Frequency of treatment	4
	Method of application with Dosage	1
	Effects: Physiological effects and therapeutic effects	3
<b>7.</b>	<b>PULSED SHORT WAVE DIATHERMY(PSWD)</b>	
	Definition, characteristics and mechanism of production	1
	Method of application	2
	Effects: Physiological effects and therapeutic effects	1
	Indications and Contraindications	1
	Dangers and Precautions	1
<b>8.</b>	<b>PARAFFIN WAX BATH</b>	
	Wax Therapy: Principle of Wax Therapy application – latent Heat	2
	Structure of the bath, composition of wax and mineral oils, Methods of application of Wax	3
	Physiological and Therapeutic effects, Indications and Contraindication	2
	Method of application with Dosage	1
	Dangers and precaution	2
<b>9</b>	<b>CRYOTHERAPY</b>	
	Define- Cryotherapy, Principle- Latent heat of fusion	2
	Methods of application with dosages	4
	Physiological and Therapeutics effects	2
	Indications and Contraindications, Dangers	2
<b>10</b>	<b>HOT PACKS, MOIST HEAT THERAPY, CONTRAST BATH</b>	
	Principle, Methods of application	3

	Physiological and Therapeutics effects	2
	Method of application with Dosage	1
	Indications and Contraindications	2
	Dangers and precaution	2
<b>11</b>	<b>HYDROTHERAPY</b>	
	Properties of water, buoyancy, effects of buoyancy on movement.	2
	Principles, Methods of application and Dosage	1
	Physiological effects and therapeutic effects	2
	Indications and Contraindications	1
	Hubbard tank, contrast bath, whirl pool bath	2
<b>12</b>	Prescription of electrotherapy modality and Dosimetry besides exercises therapy	2

**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): 8<sup>th</sup> edition. Forster A; Palastanga N, AIBS publication.
2. Electrotherapy Explained: 4<sup>th</sup> edition. Low J; Reed A. B and H Publications 2006.

**Reference Books:**

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



# SYLLABUS