

**Course syllabus**  
**Electrotherapy (RHS325)**  
**1<sup>st</sup> semester 1438-1439 H**

# Course Syllabus

## Course Syllabus

<b>Program in which the course is offered:</b>	Physical therapy program
<b>Course title and code:</b>	Electrotherapy (RHS325)
<b>Department :</b>	Rehabilitation Health Sciences
<b>Credit hours:</b>	3 hours (2 Theory+ 1 Practical)
<b>Total contact hours per semester</b>	60
<b>Level at which this course is offered:</b>	Level 4
<b>Course prerequisites:</b>	RHS321
<b>Time:</b>	Sunday 1-3:50 (theory) Tuesday 8-9:50 and 1-2:50 (practice)
<b>Location:</b>	Class NO , College of Applied Medical Sciences
<b>College member responsible for the course</b>	Dr. Mohammed TA Omar Ph.D. PT
<b>Contact information:</b>	
<b>Office Number:</b>	2074
<b>Phone :</b>	93597
<b>Email:</b>	<a href="mailto:momara@ksu.edu.sa">momara@ksu.edu.sa</a>
<b>Website:</b>	<a href="http://fac.ksu.edu.sa/momara/home">http://fac.ksu.edu.sa/momara/home</a>
<b>Office hours:</b>	Kindly refer to time table on my office door and website

### Course Description

This course will provide the students with the basic principles related to physiological and therapeutic effects and hazards and safety of electrical stimulation modalities, and evidence base practice and clinical uses electrotherapy modalities

### Course Objectives

**Upon the completion of this course, students should have the ability of the followings:**

- **Determine** the basic principles of different types of electrical currents, and related parameters such as waveform, frequency, pulse duration, amplitude, pulse and phase charge
- **Recognize** indications & contraindications and physiological effects of different electrical stimulation modalities.
- **Differentiate** between electrical stimulation modalities (direct current and iontophoresis, interrupted direct current-long and short duration- evenly alternating current)
- **Choose** the appropriate electrical stimulation intervention according to patient's diagnosis
- **Communicate** with patients, colleagues, and clinical staff probably
- **Apply** electrical currents for evaluation and rehabilitation (EMG and SDC- technique and interpretation)

### Teaching strategies

Interactive Lectures including:

- Lectures, class discussions, seminars and student presentations
- Problem solving with case scenario, Scientific videos ,
- laboratory sessions (Demonstration and scientific video and role player )

### Learning Resources

<b>Required Text (s)</b>	<ol style="list-style-type: none"> <li>1. Electrotherapy Evidence- based practice. Churchill Livingstone Title, 11th edition, 2002</li> <li>2. Wa.R, Alex .W, John. L and Ann. R. “ Electrotherapy Explained principles and practice”. Butter Worth- Heinemann Title. 4th edition, 2006.</li> <li>3. John. E.F, and Tim.N.S. “Practice Electrotherapy. A guide to safe Application”. Churchill Livingstone Title. 2007.</li> </ol>
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	4. Cameron MH. Physical agent in Rehabilitation; from research to practice. 3 <sup>rd</sup> edition. Elsevier 2009.
<b>Essential References</b>	<ol style="list-style-type: none"> <li>1. Electrotherapy Evidence- based practice. Churchill Livingstone Title, 11th edition, 2002</li> <li>2. Wa.R, Alex .W, John. L and Ann. R.“ Electrotherapy Explained principles and practice”. Butter Worth- Heinemann Title. 4th edition, 2006.</li> <li>3. John. E.F, and Tim.N.S. “Practice Electrotherapy. A guide to safe Application”. Churchill Livingstone Title. 2007.</li> <li>4. Cameron MH. Physical agent in Rehabilitation; from research to practice. 3<sup>rd</sup> edition. Elsevier 2009.</li> </ol>
<b>Recommended Journals</b>	<p>Journals of physical therapy, available at <a href="http://ptjournal.apta.org/">http://ptjournal.apta.org/</a>  Journal of physical therapy science, available at <a href="https://www.jstage.jst.go.jp/browse/jpts">https://www.jstage.jst.go.jp/browse/jpts</a>  Spine journal, available at <a href="http://www.thespinejournalonline.com/">http://www.thespinejournalonline.com/</a>  Open journal of therapy and rehabilitation, available at <a href="http://www.scirp.org/journal/ojtr/">http://www.scirp.org/journal/ojtr/</a></p>
<b>Electronic Materials and Web Sites</b>	<ul style="list-style-type: none"> <li>• <a href="http://emedicine.medscape.com/article/324583-overview">http://emedicine.medscape.com/article/324583-overview</a></li> <li>• <a href="http://www.healthline.com/galecontent/therapeutic-exercise">http://www.healthline.com/galecontent/therapeutic-exercise</a></li> <li>• <a href="http://www.guideline.gov/summary/pdf.aspx?doc_id=9910&amp;stat=1&amp;string">http://www.guideline.gov/summary/pdf.aspx?doc_id=9910&amp;stat=1&amp;string</a></li> <li>• <a href="http://www.soople.com">www.soople.com</a></li> <li>• <a href="http://www.physiotherapy.com">www.physiotherapy.com</a></li> <li>• <a href="http://faculty.ksu.edu.sa/73807/default.aspx">http://faculty.ksu.edu.sa/73807/default.aspx</a></li> </ul>

### Topics to be covered

List of topics	No of Weeks	Contact hours
<b>Introduction and orientation</b>		
<b>Basic Principle of Electrotherapy</b>	4	16
<b>Clinical uses of electrical stimulation for pain relief</b> <ol style="list-style-type: none"> <li>1. Transcutaneous electrical nerve stimulation (TENS).</li> <li>2. Interferential current</li> </ol>	4	16
<b>Clinical uses of electrical stimulation for muscles re-education and strength</b> <ol style="list-style-type: none"> <li>1. Neuromuscular Electrical stimulation (NMES).</li> <li>2. Long duration interrupted direct current</li> </ol>	3	12
<b>Iontophoresis</b>	1	4
<b>Clinical use of electrical stimulation for wound healing and edema reduction</b>	1	4
<b>Electro-diagnosis</b> <ol style="list-style-type: none"> <li>1. Strength duration curve (SDC)</li> <li>2. Electromyography(EMG)</li> </ol>	1	4

## Schedule of Assessment Tasks for Students during the Semester

Assessment task	Week due	Proportion of Final Assessment
Quizzes and curriculum activities	1 <sup>st</sup> -15 <sup>th</sup> week	5%
1 <sup>st</sup> midterm theory	5- 7 <sup>th</sup> week	10 %
2 <sup>nd</sup> midterm theory	10-12 <sup>th</sup> week	10 %
1 <sup>st</sup> Midterm laboratory	10-12 <sup>th</sup> week	10%
Research Assignment/presentation	1 <sup>st</sup> -15 <sup>th</sup> week	10%
Final Laboratory exam	16 <sup>th</sup> -18 <sup>th</sup> week	15%
Final theoretical Exam	16 <sup>th</sup> -18 <sup>th</sup> week	40%

### Required Assignments:

Week	Assignments	Evaluation	Week due
10-12	Submission of assignments		11-15
12-15	Presentation of assignments	Power point Presentation	12-16

Criteria for evaluation	<p>List any criteria for evaluating the students to</p> <ol style="list-style-type: none"> <li>1- Mark students participation during class time</li> <li>2- Quizzes</li> <li>3- Midterms</li> <li>4- Final theoretical exam.</li> </ol> <p>The question include (List, Enumerate, true and false , multiple choice questions, complete, matching, short notes)</p> <p>Final practical exam using evaluation sheet, case study</p> <p>Direct evaluation of home projects and treatment plane presentation and discussion.</p>
Course rules	<p>Dear Students, in order to have smooth and clear vision of this course we planned to clarify the class ground rules therefore it will be clear for you from the starting of the course. Therefore, please read these points carefully and make sure you understand them well as you are going to sign a declaration about that.</p> <ol style="list-style-type: none"> <li>1) Please commitment lecture time (at 1 PM).</li> <li>2) Delay more than 10 minutes for repetitive two times will be considered as reduction form 5% of class activities.</li> <li>3) You must attend at least 75% of lectures to be able to inter the final exam.</li> <li>4) Your cooperation throughout the lectures is very important and you have 5% for continuous evaluation.</li> <li>5) Please commitment the midterm exams. If any student absent because of urgent condition she must refer immediately to her academic advisor to discuss her excuse with vice chair and the doctor teaching the subject within one week from the date of the exam.</li> <li>6) Submit the assignment on the dead line as scheduled in the course syllabus. For each 3 days delay one mark will be subtracts from the total mark of the assignment. No assignment acceptance after 6 days.</li> <li>7) Regarding the team work: Please arrange into 6 groups [(For each group there is a need to have a group leader and secretary. The group leader has to distribute the work equally</li> </ol>

	<p>among her colleagues. The secretary needs to arrange for the group meeting and write the meeting minutes' (or diary- who did what? the time and the place of meeting)].</p> <p>8) For assignments the standards of evaluation are:</p> <p><b>Presentation evaluation</b></p> <ol style="list-style-type: none"> <li>Content coverage</li> <li>Content clarity</li> <li>Content sequence</li> <li>Confirmation to the time</li> <li>Visual aids clarity, relevance and creativity</li> </ol> <p><b>Student evaluation</b></p> <ol style="list-style-type: none"> <li>Ability to deliver</li> <li>Ability to present</li> <li>Answering questions</li> </ol> <p>Course Instructor Dr. Mohammed TA, Omar</p>
<b>Class Leader:</b>	<p>A group leader is a student in the class who will be chosen by the majority of class students. He should fulfill the following criteria:</p> <ul style="list-style-type: none"> <li>•GPA: not less than 3.5 /5.00</li> <li>•Good relationship with all students in the class</li> <li>•High moral standards and effective communication skills.</li> </ul>
<b>Duties of the Class leader:</b>	<p><b>Duties of the Class leader:</b></p> <ul style="list-style-type: none"> <li>• Acquiring contact information from all students in the class</li> <li>• Maintaining continuous contact with the course instructor with quick interaction</li> <li>• Delivering information and answering questions to the students quickly</li> <li>• Delivering students concerns, information and questions to the instructor quickly</li> </ul> <p><b>Advantages for the class leader:</b></p> <ul style="list-style-type: none"> <li>• If the Class leader is successful in performing the above mentioned duties, he will get the full mark in <b>Class discussion and assignment</b> (10 marks)</li> </ul> <p>If the group leader fails in these duties, the instructor has the right to call for choosing another Class leader.</p>