Information sheet for the course
Electrotherapy and phototherapy

University: *Alexander Dubček University in Trenčín*

Faculty: *Faculty of Health Care*

Course unit code: *ET/d*	**Course unit title:** *Electrotherapy and phototherapy*

Planned types, learning activities and teaching methods:
Lecture: 2 hour weekly/26 hours per semester of study; full-time

Number of credits: *2*

Recommended semester / trimester: *3rd semester in the 2nd year*

Degree of study: *I*

Course prerequisites: *Physiology*

Assessment methods:
Student receives 50 points for the semester:

- *Active participation in lectures.*
- *Test (50 points).*

To get an A mark, the student needs to obtain at least 48 points, for B at least 44 points, for C at least 41 points, for D at least 38 points and for E at least 35 points.

Learning outcomes:
By studying the subject of electrotherapy the student gains theoretical and practical knowledge on the use of electrotherapy as a part of physical therapy, focusing on the use in routine practice. He / she knows the necessary indications and contraindications of each electrotherapeutic treatment and the mechanism of their effect on the human body. At the same time the student acquires a comprehensive knowledge on phototherapy. Thus, the student is able to correctly choose the proper type of electrotherapy or phototherapy by primary diagnosis or the disease stage.
The objective is to characterize the electrotherapy, its division, basic electrical units and laws constituting the principle of electricity. Define phototherapy, its division and basic concepts explaining the nature and specificity of light. Demonstrate a thorough knowledge of the action mechanism, physiological and pathophysiological effects of electricity and electromagnetic energy and light sources on the human body. Define indications and contraindications of electrotherapy and phototherapy for each treatment. Demonstrate a thorough knowledge and practically demonstrate the methods, techniques and application principles of individual treatments of electrotherapy and phototherapy. Provide a thorough knowledge of the occupational safety principles in electrotherapy and phototherapy and be able to act within the intention of these principles.

Course contents:
Lectures:

1. *Introduction into physiatry (definition and content of physiatry, physical stimuli effects – non-specific and specific).*
2. *Regulatory processes nervous, hormonal and humoral and the organism reactivity.*
3. *Use of physical therapy in the prevention, diagnosis and therapy.*
4. *Division of physiatry by types of stimuli.*
5. *Electrotherapy (physical nature, basic phenomena and concepts, units, types of electric currents, conductors, insulators, electrotherapy division).*
6. *Flow of electrical current through the tissue and their effects.*
7. *DC electrotherapy*

8. *Galvanization:*
   - *effects, application principles (dosage and intensity), application techniques, local galvanization, hydrogalvanic therapy, electrotherapy tub,*
   - *indications and contraindications and precautions.*
9. *Iontophoresis:*
   - *principle, transmitted medicines, effects, application principles (dosage and intensity), application technique,*
   - *indications and contraindications and precautions.*
10. *Electrotherapy by mixed currents*
11. *Diadynamic currents:*
   - *effects in general, forms of DD currents and their effects, application principles, application technique.*
   - *indications and contraindications and precautions.*
12. *Electrotherapy using low frequency currents*
13. *Impulse therapy:*
   - *principle, impulse currents, effects, application principles (dosage and intensity in bipolar and monopolar form), application techniques,*
   - *indications and contraindications and precautions.*
14. *Transcutaneous electrical nerve stimulation (TENS):*
   - *principle, effects, intensity and form of current, application, instrumentation,*
   - *indications and contraindications and precautions.*
15. *Use of pulses in function electrodiagnostics.*
16. *Electrodiagnostics by means of I/t curve, accommodation coefficient and electromyography.*
17. *Medium-frequency currents electrotherapy*
   - *therapeutic form of range, effects in general, application principles, application techniques,*
   - *indications and contraindications and precautions.*
18. *High-frequency currents electrotherapy:*
19. *Shortwave, microwave, ultra short wave diathermy:*
   - *principle, therapeutic form of range, effects, application principles, application techniques,*
   - *indications and contraindications and precautions.*
20. *Ultrasonic therapy:*
   - *principle, effects, application principles (dosage and intensity, media), application techniques,*
   - *indications and contraindications and precautions.*
21. *Magnetotherapy:*
   - *physical principle,*
   - *indications and contraindications and precautions.*
22. *Biological feedback (principle, process, instrumentation).*
23. *Phototherapy: physical principle, basic units, concepts, optical spectrum division.*
24. *Infrared radiation, ultraviolet radiation, balneophototherapy, polarized light:*
   - *wavelengths and bands, effects, sources, application principles and application techniques,*
   - *indications and contraindications and precautions.*
25. *Laser radiation:*
   - *physical principle, laser light properties, effects, instrumentation, application principles and application techniques,*
   - *indications and contraindications and precautions.*

Recommended reading:

1. *PODĚBRADSKÝ, J., PODĚBRADSKÁ, R.: 2009. Fyzikální terapie, Manuál a algoritmy. Grada, 2009, ISBN 978-80-247-2899-5.*
2. *KOLÁŘ, P. a kol.: 2010. Rehabilitace pro klinickou praxi. Galén, 2010, ISBN 978-80-7262-6571.*
3. *ŠAJTER, V. a kol.: 2005. Elektroterapia a fototerapia. Osveta, 2005, ISBN 80-8063-171-9.*
4. *ČELKO, J.: 1996. História a súčasnosť fyzikálnej liečby. 1996. In: Lekárske listy. - Roč.1, č.9(1996),s.1-2,4 ISSN 0006-9248.*
5. *KOMAČEKOVÁ, D.: 2006. Fyzikálna terapia. Osveta Martin, ISBN 80-80632-308*
6. *HUPKA, J.: 1993. Fyzikálna medicína. Martin: Osveta, 1993.ISBN, ISBN 80-217-0568-X.*

Language: *Slovak*

Remarks:

Evaluation history

Total number of evaluated students:

A	B	C	D	E	FX

Lecturers:

doc. MUDr. Juraj Čelko, PhD.
MUDr. Miroslav Malay

Last modification: *22.04.2014*

Supervisor: *doc. MUDr. Juraj Čelko, PhD.*