COURSE DESCRIPTOR CLINICAL THERAPEUTIC EXERCISE

Semester:1^{o} ***ECTS: 8*** ***Module code: МП3***

Contact Hours: 2 Theory/1 Workshop ***Type: Core Module***

Module Aims: The module of Clinical Therapeutic Exercise studies all the energetic systems of the human body required to perform a physical and mental activity. This field of study explores the sources of energy performance during exercise, the regulatory mechanisms of homeostasis, the biological adaptations of the human body systems and the factors that affect exercise (specific diseases, specific populations, nutritional and environmental factors, etc.). for health enhancement to physical activity. This course provides the student with the opportunity to learn the physiological basis of exercise and to understand in depth the effect of planned exercise in relation to the biological mechanisms of the human body, psychological, social and environmental.

Learning Outcomes:

Upon successful completion of the module, the student will be able to:

1. Develop critical thinking and organizational skills, starting from the evaluation of the physiological systems of the human body for proper application of therapeutic exercise.
2. Understand the application of therapeutic exercise in different groups of the population in relation to energy sources and the activation of metabolism.
3. To develop skills in diagnostic ability and decision making for the implementation of the appropriate program of therapeutic exercise.
4. Collaborate with their classmates and other related specialties to create and present a project or compose a group work on a topic related to clinical therapy.
5. To analyse and synthesize data and information, using the necessary technologies for the proper application of therapeutic exercise.
6. To organize coursework-assignments at an international level on topics related to the application and research study of clinical therapy.
7. To promote free and creative thinking for the proper application of therapeutic exercise in the body and mind.

Course contents: During the course the following Thematic Units will be developed:

-Introduction to Therapeutic Exercise. Exercise physiology, fitness components, epidemiology, exercise programming-ACSM guidelines.

-Energy sources and basic factors of exercise metabolism.

-Aerobic and anaerobic adaptations in special groups, exercise guidelines and assessment procedures.

-Neuromuscular adaptations to exercise: a) physiology of muscle contraction, types of muscle fibres, b) nerve adaptations and skeletal muscles, motor control.

-Metabolism during exercise. Energy requirements and transition from rest to exercise. Metabolic response and exercise.

-Exercise and immune system, thermoregulation, hormones.

-Exercise program design and exercise prescribing.

-Nutrition and exercise: a) energy balance, energy expenditure and metabolism and exercise, body composition.

-Exercise and psychology of injury: a) Psychological and social factors of injury prediction, emotional reactions to injury, techniques of psychological intervention, mind-body relationship.

-Exercise and injuries of the myotendinous system: category of injuries, predominant anatomical areas (core stability) epidemiology, evaluation, prevention, exercise dosage, special populations, performance training (aerobic, anaerobic, strength).

-Exercise and woman: pelvic floor problems: pregnancy, urinary incontinence.

-Exercise and special population groups: a) obesity, b) children and adolescents.

Teaching methods and teaching aids: 13 weeks X 2 hours theory & 1-hour workshop**.**
Assignments: Students are required to prepare and conduct assignments based on the regulations of the MSc Programme and the assembly of the department.
Assessment methods: Student assessment will be carried out in accordance with the regulations of the MSc programme and the relevant decisions of the assembly of the department.

Suggested bibliography:

1. American College of Sports Medicine. ACSM's Introduction to Exercise Science. 1st Edition. USA: Lippincott Williams & Wilkins, 2011.
2. American College of Sports Medicine. ACSM's exercise management for persons with chronic diseases and disabilities. 3rd Edition. Champagne, IL: Human Kinetics, 2009.
3. American College of Sports Medicine. ACSM's exercise management for persons with chronic diseases and disabilities. 3rd Edition. Champagne, IL: Human Kinetics, 2009.
4. American College of Sports Medicine. ACSM's guidelines for exercise testing and prescription. Baltimore: Lippincott Williams & Wilkins, 2006.
5. American College of Sports Medicine. ACSM's Introduction to Exercise Science. 1st Edition. USA: Lippincott Williams & Wilkins, 2011.
6. Astrand PO, Rodahl K, Dahl HA, et al. Textbook of work physiology. Physiological basis of Exercise. Champagne, IL: Human Kinetics, 4th Edition, 2003.
7. Αστέριος Δεληγιάννης. Ιατρική της άθλησης. University Studio Press. Third edition, 2016.
8. Bloomfield J, Fricker PA, Fitch KD. Science and Medicine in Sports. 2nd Edition. USA: Blackwell Science Pty Ltd, 1996.
9. Bromley PD. Clinical Skills for Exercise Science. Routledge: Taylor & Francis Group, 2010.
10. Ehrman JK, Gordon P, Paul SV, Steven J. Keteyian. Clinical Exercise Physiology. 3rd Edition. IL: Human Kinetics, 2013.
11. Κλεισούρας Β. Εργοφυσιολογία (Τόμοι Ι, ΙΙ, ΙΙΙ). Αθήνα: Ιατρικές Εκδόσεις Π. Χ. Πασχαλίδης, 2011.
12. McArdle W. Φυσιολογία της Άσκησης (Τόμοι Ι, ΙΙ, ΙΙΙ). Αθήνα: Ιατρικές Εκδόσεις Π. Χ. Πασχαλίδης, 2001.
13. Mcardle WD, Katch FI, Katch VL. Exercise physiology: energy, nutrition, and human performance. 7th Edition. Lippincott Williams & Wilkins, 2009.
14. Melvin WH. Nutrition for fitness and sport. 4th Edition. Chicago: William C Brown Pub, 1995.
15. Powers S, Howley E. Exercise Physiology: Theory and Application to Fitness and Performance. 8th Edition. USA: McGraw-Hill Humanities, 2011.
16. Powers K. S., Howley T. E. Φυσιολογία της άσκησης. Θεωρία και εφαρμογές Ευρωστίας και απόδοσης. Broken Hill, 2018.
17. Raven P, Wasserman D, Squires W, Murray T. Φυσιολογία της Άσκησης. Μια ολιστική Προσέγγιση. Ιατρικές Εκδόσεις, Λαγός Δημήτριος, 2016.
18. Williams H., Μ. Διατροφή, Υγεία, Ευρωστία και Αθλητική Απόδοση. Broken Hill, 2014.
19. Wilmore J, Costill D. Φυσιολογία της Άσκησης και του Αθλητισμού (Τόμοι Ι, ΙΙ, ΙΙΙ). Αθήνα: Ιατρικές Εκδόσεις Π. Χ. Πασχαλίδης, 2006.