Course title	**Resistance training – Functional evaluation of movement**				
Course code	**TRAN210**				
Course type	**Lectures and practical exercise**				
Level	**Diploma**				
Year / Semester	**2nd Year / 3rd Semester**				
Teacher's name	**Antonis Polyviou**				
ECTS	6	**Lectures / week**	3	**Laboratories / week**	
Course purpose and objectives	The aim of the course is to equip the students with all the necessary knowledge related to of strength exercise, while at the same time the students become engage with discussions on anatomical analysis of the joints, the limit of the range of movement, the muscles, etc. At the same time, the course emhpasises on identifying the factors that seem to impair the musculoskeletal movement (injuries, localised stress / fatigue, etc.). Ultimately, the course discusses the solutions to musculoskeletal movement impairment, which can have positive effects on the quality of movement and the reduction of injury risks.				
Learning outcomes	Upon the completion of the course, the students are expected to: **Knowledge** 1. **Describe** and understand the function of the muscles, bones, ligaments and joints that make up the human body. 2. **Explain** basic functional movement anatomy and the types of muscle activation 3. **Recognise** common mistakes observed during the technical execution of the exercises. 4. **Describe** what is proper bracing based on the various breathing techniques and why it is important for the correct execution of an exercise **Skills** 5. **Perform** the basic exercise technique correctly: a) Traditional strength exercises (e.g. sit-ups and variations, deadlifts, bench presses, etc.) b) Functional strength exercises (e.g. walking lunges -robot version, monster walk, Single Arm Cable Row with Wrist Rotation, etc.) 6. **Apply** the principles of designing individualised training programmes (choice-appropriate exercise, sequence of exercises, etc.) 7. **Apply** functional mobility assessments (posture, mobility, balance and flexibility) and mobility improvement protocols 8. **Apply** strength building techniques and methods				

	9. **Apply** the basic training systems (Drop set, Rest and pause, German Volume Training, etc.) **Responsibility and Autonomy** 10. Be able to **analyse** the musculoskeletal movement, the factors that affect it (e.g. Injuries, localised stress, etc.) and to be able to **deal with** such issues, **presenting** corrective solutions which are important to the quality of life, the performance, and the limitation of risks associated with injuries.		
Prerequisites	**Personal Training-Resistance Training TRAN106** **Specialised Personal Training – Resistance Training TRAN119**	**Required**	
Course content	• Theory, benefits and parameters of functional muscle anatomy as well as functional training • Bones, joints, ligaments and muscles of the human body and their function. • Technique improvement and practical application of exercises (Upper torso, lower torso, core) with hip dominant, knee-dominant, pushing, pulling and core exercises. • Stability and mobility training • Basic exercise routine and balance exercises • Measurements of functional mobility (body posture, mobility, balance and flexibility) • Planning exercise programmes with the aim of increasing strength and mobility. • Functional anatomy of the motor system and movement disorders. • Discussion of cases (case studies)		
Teaching methodology	The content of the course is taught through lectures with the help of a computer, video projector, electronic presentations and multimedia and the use of a whiteboard. Active student participation is ensured through guided discussions. The practical part of the course is carried out in an accredited gym centre.		
Bibliography	**Greek Bibliography** • Τερζής, Γ. (2022). *Μυϊκή Ενδυνάμωση [Muscle strength]*. Kallipos, Open Academic Editions.Ανακτήθηκε από https://dx.doi.org/10.57713/kallipos-26 • American College of Sports Medicine (2008). *Το εγχειρίδιο του προσωπικού γυμναστή [The manual of the personal trainer]*, Αθλότυπο, ISBN 978-960-7378-82-8. • Delavier, F. (2012). *Προπόνηση για αύξηση της μυϊκής δύναμης : Λειτουργική ανατομική των μυών [Training to increase muscle strength : Functional anatomy of muscles].* Εκδόσεις Π. Χ. Πασχαλίδης. 3η Έκδοση. ISBN: 9789963744107 • Φατούρος, Γ.Ι. & Χατζηνικολάου, Θ. (2012). *Προπόνηση με βάρη, διδασκαλία, ασφάλεια και οργάνωση ασκήσεων [Training with weights, teaching, safety and exercise planning]*, ISBN 978-960-8410-97-8		

	• Καρατζαφέρη, Κ., et al. (2015). *Εγχειρίδιο για την σωματική αξιολόγηση αθλητών: δοκιμασίες εργαστηρίου και πεδίου για την επιστημονική υποστήριξη του αγωνιστικού αθλητισμού [Manual for the body evaluation of the athletes]*. Kallipos, Open Academic Editions. https://hdl.handle.net/11419/4443 **English Bibliography** • Boyle M. (2010). *Advances in Functional Training: Training Techniques for Coaches, Personal Trainers and Athletes*. On Target Publications. ISBN: 978-1931046015. • Harris, Philip, Robertson, Angus, Ranson, Craig (2015). *Anatomy for Problem Solving in Sports Medicine.* Keswick, Cumbria : M&K Update Ltd. EBSCOHost. • Thomas A. Toth (2015). *Technology for Trainers*. 2nd Edition. Alexandria, VA : Association for Talent Development. **EBSCOHost**. • Bret Contreras (2013), *Human kinetics, Bodyweight Strength Training Anatomy*, ISBN 9781450466400
Assessment	• Attendance and class participation: 10 % • Intermediary practical examination: 20% • Final practical examination: 30% • Final written examination: 40%
Language	Greek or English