Course Title	**STRENGTH AND CONDITIONING**				
Course Code	SSTSC305-1				
Course Type	MANDATORY				
Level	BSc (Level 1)				
Year / Semester	3rd / Fall				
Teacher's Name	Dr. Anthi Xenofontos & Dr. Orestis Antoniades				
ECTS	6	Lectures / week	1	Laboratories / week	2
Course Purpose	The purpose of this course is to prepare students to understand and apply resistance training programs. This includes mastering knowledge of physiological, and industrial principles, understanding different methods of resistance training, assessing individual needs, ensuring safety in training, and applying scientific knowledge to improve strength, endurance, and overall fitness in various populations.				
Learning Outcomes	By the end of the course, students are expected to: 1. Know the basic characteristics and kinesiological principles of each resistance exercise: (weights, rubber, body weight, etc.). The basic principles of joint mobility and the categorization of exercises e.g. flexor exercises, extensor muscle exercises, etc. 2. Know basic principles of joint mobility and the categorization of exercises e.g. flexor exercises, extensor muscle exercises, etc. 3. Evaluate and apply the various forms of force (maximum strength, muscle hypertrophy, endurance in strength, power). 4. Know the equipment required for each exercise separately and adapt to the equipment at their disposal. 5. Understand the advantages and disadvantages of resistance exercises. 6. Know the safety principles for each muscle group and apply critical thinking to deal with any problems that may arise. 7. Apply strength assessment to athletes, women, adolescents, children and the elderly and create the Need Analysis of each trainee. 8. Apply the principles of strength training and periodicity and create programs for athletes, women, adolescents, children and the elderly. 9. Understand the methodology and teaching of resistance exercises and create programs specialized to the needs of each trainee. 10. Assess the specific conditions set when strengthening training women, adolescents and children and the elderly are applied and how they are applied in practice.				
Prerequisites	No	Corequisites	No		
Course Content	1. Equipment in resistance training: types of equipment, selection of equipment, organization of a gym, design of the site,				

	safety rules. 2. Basic principles of resistance training: Physiology and anatomy of muscle contraction, kinesiological principles of resistance training, types of muscle contraction, maximum voluntary contraction, neuromuscular function, neuromuscular adaptations of resistance exercise, periodization of resistance training (overload, training volume, rest, speed of movement) 3. Types of strength training: Isometric training, Dynamic training with fixed external resistance, Variable resistance training, Isokinetic training, Plyometric training, Comparison of different types of training, and cardiovascular adjustments. 4. Design of resistance training programs: choices of training parameters, adaptability of individuals, definition of training goals, techniques and systems of resistance training, training for beginners, advanced training. 5. Resistance training in women, children and the elderly: analysis of individual needs, exercise-induced adjustments. • Women's resistance training: differences in muscle strength between sexes, hormonal effects on resistance training, menopause and bone density, design and evaluation of resistance exercise programs in women. • Children/adolescents and resistance training: philosophy of resistance exercise in childhood, increase of resistance, developmental differences, resistance exercise programs, design and evaluation of resistance exercise programs in children/adolescents. • Third age and resistance training: muscle strength and functional capacity, loss of muscle strength and power in old age, exercise-induced adjustments to rhythm, loss of muscle strength and power in old age, design and evaluation of resistance exercise programs in old age. 6. Summary and critical evaluation of the agendas.
Teaching Methodology	**Theory** The teaching of the course includes lectures to provide the theoretical background. Detailed notes with PowerPoint and material rich in images and videos are used in teaching. Methods such as case studies, clinical scenarios, discussion, questions/answers are used in the teaching methodology depending on the nature of the course. In addition, workshops and site visits with hands-on experiences are provided to deliver the practical background of the content of the course. Relevant material published in international scientific journals is also used to follow the latest developments related to the subject of the course. Monological, dialogical and exploratory-active methods. Presentations, individual study, dialogue / questions and answers, brainstorming, experiential learning, exploratory method and critical reflection will be used. **Practical** During the practical courses, students develop the practical skills required for resistance exercises, with emphasis on correct technique with progressive teaching and application of exercises, so that they become able to perform and teach the basic motor skills of resistance exercises. See also

	the way of teaching each exercise/program for the sport using a trainee model is described and presented.
Bibliography	• Φατούρος, Ι. & Χατζηνικολάου, Α. Προπόνηση με βάρη - εκτέλεση, διδασκαλία, ασφάλεια και οργάνωση των ασκήσεων Εκδόσεις Τελέθριον, Αθήνα, (2011). ISBN: 978-960-8410-97-8. • Kraemer, W.J. & Fleck, S.J. Ανάπτυξη δύναμης σε παιδιά & εφήβους. Εκδόσεις Salto, Θεσσαλονίκη, (1996). ISBN: 960-278- 073-8. Additional bibliography: • Fleck, S.J. & Kraemer, W.J. Σχεδιασμός προγραμμάτων άσκησης με αντίσταση. Ιατρικές Εκδόσεις Π.Χ. Πασχαλίδη, Αθήνα, (2007). ISBN: 960-399-453-7. • Delavier, F. Προπόνηση για ενδυνάμωση & σύσφιγξη στις γυναίκες - λειτουργική ανατομική των μυών. Ιατρικές Εκδόσεις Π.Χ. Πασχαλίδη, Αθήνα, (2007). ISBN: 960-399-500-5. • Contreras B. Bodyweight Strength Training Anatomy. Human Kinetics (2014). ISBN-10: 1-4504-2929-7. Link to get the eBook. • Brown L. Strength Training. National Strength & Conditioning Association (2007). SBN-10: 1-4504-2929-7. Link to get the eBook.
Assessment	**Continuous evaluation (75%):** The assessment may include any combination of the following: • **Pop-up Exit Tickets (25%):** Pop-up exit tickets consist of short quizzes. The questions will examine the student's performance in the reported learning outcomes of the current lecture. Each exit ticket will contribute up to 5% of the grade of the final course. Students are encouraged to complete 5 exit tickets during the course. • **Project (Presentation of scientific article - program) (25%):** Research on topics to be given and presentation of scientific articles and exercises on this topic. • **Practical exam (25%):** Solving a case study based on the entire course content through Need Analysis and demonstration of exercises. Practical assessment consists of assessing expected skills and competencies, critical thinking, problem-solving, and teamwork skills. During laboratory meetings, students are closely monitored as they engage in the tasks assigned to them, and notes are taken on actions, approaches, and any relevant observations that demonstrate an understanding of the subject and application of their skills. After the evaluation of the laboratory work, constructive feedback is provided to students. Highlight their strengths and areas for improvement, linking them to learning outcomes to help students understand their progress and guide them in their further

	development. Depending on the laboratory work, peer review may be integrated, where students evaluate each other's work against the established criteria to promote self-reflection, collaboration, and a deeper understanding of the subject. **Final exam (25%):** Comprehensive final exam, to assess students' overall theoretical knowledge. These assessments cover a wider range of topics and learning outcomes from across the curriculum, to assess students' understanding and integration of knowledge in various areas.
Language	Greek / English