COURSE OUTLINE: FIT124 - EXERC. PHYSIOLOGY I

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Course Code: Title	FIT124: EXERCISE PHYSIOLOGY I
Program Number: Name	3040: FITNESS AND HEALTH
Department:	FITNESS & HEALTH PROMOTION
Academic Year:	2023-2024
Course Description:	This course is the first part of a two-part series (Applied Exercise Physiology I and II). This course examines the physiological adaptations that take place within the human body during exercise and work including the muscular, nervous, endocrine, cardiovascular and respiratory systems. Bioenergetics and physiological adaptations to training will also be discussed based on a variety of exercise examples and age populations.
Total Credits:	3
Hours/Week:	3
Total Hours:	42
Prerequisites:	PNG111
Corequisites:	There are no co-requisites for this course.
Substitutes:	FIT155
This course is a pre-requisite for:	FIT214
Vocational Learning Outcomes (VLO's) addressed in this course: **Please refer to program web page for a complete listing of program outcomes where applicable.**	**3040 - FITNESS AND HEALTH** VLO 1 Conduct an assessment of the physical fitness, activity level and lifestyle of the client using standardized protocols, to build an individualized exercise program. VLO 2 Develop, implement and evaluate safe training programs grounded in fundamentals of anatomy, bio-mechanics, cardiorespiratory physiology, and nutrition to support the fitness and wellness goals of clients. VLO 5 Develop business plans for a fitness and/or training business organization to ensure sustainability and viability while mitigating risks.
Essential Employability Skills (EES) addressed in this course:	EES 1 Communicate clearly, concisely and correctly in the written, spoken, and visual form that fulfills the purpose and meets the needs of the audience. EES 2 Respond to written, spoken, or visual messages in a manner that ensures effective communication. EES 4 Apply a systematic approach to solve problems. EES 5 Use a variety of thinking skills to anticipate and solve problems. EES 6 Locate, select, organize, and document information using appropriate technology and information systems. EES 7 Analyze, evaluate, and apply relevant information from a variety of sources.

	EES 8 Show respect for the diverse opinions, values, belief systems, and contributions of others. EES 9 Interact with others in groups or teams that contribute to effective working relationships and the achievement of goals. EES 10 Manage the use of time and other resources to complete projects. EES 11 Take responsibility for ones own actions, decisions, and consequences.
Course Evaluation:	Passing Grade: 50%, A minimum program GPA of 2.0 or higher where program specific standards exist is required for graduation.
Books and Required Resources:	Physiology of Sport and Exercise with Access by Kenney Publisher: Human Kinetics Edition: 8th ISBN: 9781718201729 9781718201736

Course Outcomes and Learning Objectives:

Course Outcome 1	Learning Objectives for Course Outcome 1
1. Apply knowledge of basic anatomy and physiology concepts to determine how the body adapts anatomically and physiologically during exercise	1.1 Recall knowledge from each of the following body systems, muscular, nervous, cardiovascular, respiratory, and endocrine systems 1.2 Indicate, discuss and give examples of how exercise affects the muscular, nervous, cardiovascular, respiratory, and endocrine systems 1.3 Define different types of contraction, i.e. concentric, eccentric, isometric and apply these contractions to various exercises 1.4 Define and differentiate the types of muscle fibers i.e. Type I & II and give examples of activities that recruit each fiber type. 1.5 Describe the role of the Muscle Spindle and Golgi Tendon in controlling muscle contractions 1.6 Identify hormones that are involved during exercise and explain their specific actions. 1.7 Describe the functions of the heart and identify changes to the cardiovascular system as it relates to exercise i.e. blood pressure, heart rate, stroke volume, cardiac output 1.8 Describe the functions of the lungs and identify changes to the respiratory system as it relates to exercise i.e. Respiration, Fick`s law, tidal volume
Course Outcome 2	**Learning Objectives for Course Outcome 2**
2. Identify and explain the energy systems and pathways used by the body during exercise and apply this knowledge to various activities and exercise programs	2.1 Define the ATP-PCr, glycolysis and oxidative energy pathways 2.2 Differentiate between aerobic and anaerobic energy systems 2.3 Classify activities and exercises to the appropriate energy systems and pathways 2.4 Discuss the interaction among the three energy systems during exercise

Course Outcome 3	Learning Objectives for Course Outcome 3
3. Understand the difference between acute and chronic exercise and the physiological responses to both acute and chronic exercise	3.1 Define acute exercise 3.2 Identify physiological responses to acute exercise 3.3 Define chronic exercise 3.4 Identify physiological responses to chronic exercise
Course Outcome 4	**Learning Objectives for Course Outcome 4**
4. Infer how exercise physiology concepts and theories will affect assessments of fitness and the development of an exercise program	4.1 Describe how the physiological and anatomical changes that occur during exercise will affect the design and implementation of exercise assessments. 4.2 Describe how the physiological and anatomical changes that occur during exercise will affect the design and implementation of an exercise program.
Course Outcome 5	**Learning Objectives for Course Outcome 5**
5. Describe how the body expends energy during rest and exercise and how the body responds to fatigue during exercise	5.1 Define and differentiate between the basal metabolic rate and the resting metabolic rate 5.2 Identify the lactate threshold and explain the relationship to exercise performance 5.3 Describe the economy of effort and its relationship to exercise performance 5.4 Understand the relationship between oxygen consumption and energy production 5.5 Describe the possible causes of fatigue during exercise 5.6 Describe the physiological basis for delayed onset of muscle soreness 5.7 Describe the physiological basis for exercise-associated muscle cramps
Course Outcome 6	**Learning Objectives for Course Outcome 6**
6. Observe, assess, and explain various exercise testing protocols in relation to the neuromuscular system and energy systems.	6.1 Observe various physiological tests 6.2 Explain and conduct various laboratory methods of physiological assessments in exercise science 6.3 Interpret exercise response graphs and relate them to normal resting states 6.4 Compare and contrast metabolic changes that occur during low and high intensity exercise

Evaluation Process and Grading System:

Evaluation Type	Evaluation Weight
Learning Activities	30%
Tests	70%

Date: December 11, 2023

Addendum: Please refer to the course outline addendum on the Learning Management System for further information.