Subject	**Advanced biomechanics and kinesiology**		
Type	Type	Semester	ECTS
	MANDATORY (M)	V	4
Lecturer	Dr.Sc. Milaim Berisha		
Aims and Objectives	Besides the general knowledge about the biomechanics and its applicative benefits in sports and movement science, the course aims to enable students to understand, explain, and apply fundamental calculations related to the mechanical structure of body composition. Additionally, enabling students to calculate the effects of motor skills on human movement and, more importantly, translate these results into training variables as key performance indicators.		
Learning Outcomes	Upon completion of this module, students shall be able to: ✓ Understand biomechanics, its principles, and its benefits in sports, body composition, and motor skills. ✓ Calculate the mechanical structure of body composition ✓ Calculate the mechanical structure of motor skills ✓ Translate the results of mechanical analysis into training variables as key performance indicators.		
Content	**Week**	**Topics**	
	Syllabus presentation		
	1	Biomechanics in kinesiology	
	2	Content and terminology of Biomechanics in kinesiology	
	3	Tools used in biomechanics of sports science	
	4	Calculation of the kinematics of linear movements (displacement, velocity, acceleration)	
	5	Calculation of the angular movement's cinematics (displacement, velocity, acceleration)	
	6	Projectile calculation (initial velocity, angle of launch, time of flight, range (distance traveled), maximum height)	
	Mid-term exam – 1		
	7	Newton Laws and force, energy and power	
	8	Calculation of momentum and impulse	
	9	Calculation of the center of gravity	
	10	Calculation of the inertia	
	11	Analyzing the results of biomechanical analysis	
	12	Reporting the results of the biomechanical analysis	
	Mid-term exam – 2		
Teaching/Learning Methods	Activity		Weight (%)
	Lectures		40%
	Lab		40%
	Research		10%
	Independent learning		10%
Assessment Methods	**Methods of assessment:**		%
	Participation		10%
	a) Mid-term exam -1		10%
	b) Mid-term exam - 2		10%
	Lab		30%
	Task		40%
Resources	**Resources**		**Number**
	Lectures		1
	Presantations		1
	Web of science		1
	PubMed		1
	Scopus		1
ECTS Workload	**Activity**	**Weekly hours**	**Workload**
	Lectures	2	24

	Lab	1	12
	Independent learning	n/a	64
	Examination preparation	n/a	25
Literature	• American College of Sports Medicine. (2013). ACSM Guidelines for Exercise Testing and Prescription (9th ed.). Philadelphia, PA: Lippincott Williams & Wilkins. • Heyward, V., & Gibson, A. L. (2018). Advanced Fitness Assessment and Exercise Prescription, 7E. Human kinetics. • Heyward, V. H., & Gibson, A. L. (2010). Principles of assessment, prescription, and exercise program adherence. *Advanced Fitness Assessment and Exercise Prescription. 6th ed. Champaign, IL: Human Kinetics Publishers*. • Berisha, M. (2021). Determination of flexibility and mobility levels for female physical education students and motor asymmetry analysis. *Physical education of students*, *25*(5), 272-279. • Thaqi, A., Berisha, M., & Shaqiri, K. (2023). The motor competency level of elderly people measured by Functional Movement Screen protocol. *Pedagogy of Physical Culture and Sports*, *27*(4), 267-273. • Berisha, M. I. L. A. I. M. (2021). Normative values for physical and psychomotor characteristics in children aged 4-7 in Turkey (Sakarya). *Человек. Спорт. Медицина*, *21*(1), 94-101. • Berisha, M., Ceyhan, G., Büyükergün, A., & Gjaka, M. (2023). A New Approach to Active Flexibility Measurement in Students of Sports Sciences Faculties. *Kinesiologia Slovenica*, *29*(2), 195-207.		
Ethical standards	This course follows UBT College's Code of Ethics, requiring all students to behave accordingly. Any case of academic misconduct, including but not limited to cheating, plagiarism, or other forms of dishonesty, will lead to significant punishment such as failure of the specific assessment or the entire course, as well as further disciplinary measures in accordance with UBT College's academic integrity policies.		
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