



Health and Sports Science Module Handbook
Faculty of Sports Science Universitas Negeri Makassar

Module designation		<i>Biomechanics</i>				
Semester(s) in which the module is taught		5				
Person responsible for the module		Etno Setyagraha, S.Or., M.Or.				
Language		Bilingual (Bahasa and English)				
Relation to curriculum		Compulsory				
Teaching methods		3 parallel classes consist of 35 students/class: 1) Lecture (Face to face lecture): 3 hours x 14 weeks 2) Practical class: -				
Workload	Total workload	130 hours				
		Face to face teaching	Structured activities	Independent study	Exam	total
	Lecture	42	42	42	4	130
	Practical class	-	-	-	-	-
	Total					130
Credit points		3 credits				
Required and recommended prerequisites for joining the module		None				



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<p>Module objectives / intended learning outcomes</p>	<p>By the end of this course, students should be able to do the following:</p> <ol style="list-style-type: none"> 1. Describe and define movements and fundamental biomechanical principles using scientific terminology. 2. Identify and understand both inefficient and efficient biomechanics of static positions and dynamic movements. 3. Define, recognize, and apply concepts of both linear and angular kinematics and kinetics as they apply to the analysis of human movement. 4. Apply biomechanical principles to human movement situations including but not limited to performance and training. 5. Evaluate the mechanics of exercises and activities as they affect the human body. 6. Apply principles related to internal tissue loading to improving tissue structure and function, and to injury prevention.
<p>Content</p>	<ul style="list-style-type: none"> • Introduction to Biomechanics and musculoskeletal review • Linear kinematics • Projectile motion • Forces • Linear kinetics • Work, power, energy • Fluid mechanics • Angular Kinematics • Torques and moments of force • Angular kinetics • Mechanical properties of biological tissues
<p>Exams and assessment formats</p>	<p>Assignments</p> <ul style="list-style-type: none"> • Homework Assignment: There will be a list of questions to answer by students in every meeting. These homework assignments will be submitted the day before the new meeting. • Group presentation: There will be a group presentation on a topic regarding a biomechanics advancement. The topic must be pre-approved and no duplicate topics are allowed. The paper must be 5 pages in length, 1" margins, 12-point Times New Roman font, double-spaced, and in the proper format. <p>Weight: 50%</p>



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	<p>Mid and Final Examinations</p> <p>Intent: There will be two (2) exams during the course, mid-semester exam and final-semester exam, for students to demonstrate their mastery of course concepts. The exams will consist of True or False and Multiple Choice Questions.</p> <p>Weight: 50%</p>
Study and examination requirements	<p>Students are expected to attend all classes unless circumstances prevent them from attending and an email was sent prior to class. Final grading will be based on students' attendance, their participation in completing the assignments, and their scores in mid and final examinations.</p>
Reading list	<p>McGinnis P. (2020). Biomechanics of Sport and Exercise, 4th Edition. Human Kinetics.</p> <p>Winter, D.A. (2009). Biomechanics and Control of Human Movement, 4th Edition. Wiley.</p> <p>Nordin, M., & Frankel, V, H. (2012). Basic Biomechanics of the Musculoskeletal System, 4th Edition. Lea dan Febiger.</p> <p>Blazevich., & Anthony. (2017). Sports Biomechanics The Basics: Optimising Human Performance. Bloomsbury.</p>