

## Course Description Form

<b>1. Course Name:</b>	
Biomechanics I	
<b>2. Course Code:</b>	
WBM-41-01	
<b>3. Semester / Year:</b>	
1 <sup>st</sup> Semester / 2025 \2024	
<b>4. Description Preparation Date:</b>	
19/4/2024	
<b>5. Available Attendance Forms:</b>	
Weekly (Theoretical & Practical)	
<b>6. Number of Credit Hours (Total) / Number of Units (Total)</b>	
45 Hrs. Theoretical & 45 Hrs. Practical / 3 Units	
<b>7. Course administrator's name (mention all, if more than one name)</b>	
Name: Saed Muhmoud Sarhan Email: saed.muh@uowa.iq	
<b>8. Course Objectives</b>	
<b>Course Objectives</b>	<ul style="list-style-type: none"> <li>• Understand the Fundamentals: Students should gain a solid understanding of the mechanical properties of Human Joints, and the mechanical interactions between forces and the human body.</li> <li>• Apply Knowledge Practically: Encourage the application of theoretical concepts in real-world situations, such as orthopedic biomechanics and rehabilitation.</li> <li>• Develop Problem-Solving Skills: Students should be able to analyze complex biomechanical problems</li> <li>• Cultivate Research Skills: Teach students how to conduct empirical research, analyze data, and present findings effectively.</li> </ul>
<b>9. Teaching and Learning Strategies</b>	
<b>Strategy</b>	<b>1. Teaching Methods</b> <ul style="list-style-type: none"> <li>• Lectures: Use lectures to introduce core theoretical concepts. Incorporate multimedia presentations to illustrate</li> </ul>

complex biomechanical phenomena and their applications in biomedical.

- **Case Studies:** Analyze real-life case studies that require students to apply their theoretical knowledge to solve practical problems.

### 2. Learning Activities

- **Laboratory Experiments:** Design lab sessions that allow students to test and analyze mechanical properties, and use biomechanical testing equipment.
- **Project-Based Learning:** Assign projects that require design, implementation, and testing of models related to biomechanics, encouraging teamwork and innovation.

### 3. Continuous Improvement

- **Feedback:** Regularly collect feedback from students regarding the clarity of instructions, the relevance of course content, and the effectiveness of teaching methods.
- **Curriculum Updates:** Continuously update the curriculum based the latest scientific advancements in biomechanics.

## 10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	6	Introducing importance of Biomechanics	Introduction to biomechanics	Theoretical & Practical	Daily test and oral questions
2	6	Ability to analyze human movements	kinematics concepts for analyzing human motion	Theoretical & Practical	Daily test and oral questions
3	6	Ability to analyze the forces acting on movement	kinetic concepts for analyzing human motion	Theoretical & Practical	Daily test and oral questions
4	6	Mechanical analysis Orthopedics and mobility	The biomechanics of human bone and development (1)	Theoretical & Practical	Daily test and oral questions
5	6	Mechanical analysis Orthopedics and mobility	The biomechanics of human bone and development (2)	Theoretical & Practical	Daily test and oral questions
6	6	Ability to analyze movements of the skeleton	the biomechanics of human skeletal	Theoretical & Practical	Daily test and oral questions

		skeletal and joint movements of the	articulations (1)		
7	6	Ability to analyze movements of the skeleton skeletal and joint movements of the	the biomechanics of human skeletal articulations (2)	Theoretical & Practical	Daily test and oral questions
8	6	Analyzing Muscle Strength human body	the biomechanics of human skeletal muscle (1)	Theoretical & Practical	Daily test and oral questions
9	6	Analyzing Muscle Strength human body	the biomechanics of human skeletal muscle (2)	Theoretical & Practical	Daily test and oral questions
10	6	Mechanical analysis Human body Upper limbs	the biomechanics of human upper extremity (1)	Theoretical & Practical	Daily test and oral questions
11	6	Mechanical analysis Human body Upper limbs	the biomechanics of human upper extremity (2)	Theoretical & Practical	Daily test and oral questions
12	6	Mechanical analysis Human body Lower limbs	the biomechanics of human lower extremity (1)	Theoretical & Practical	Daily test and oral questions
13	6	Mechanical analysis Human body Lower limbs	the biomechanics of human lower extremity (2)	Theoretical & Practical	Daily test and oral questions
14	6	Human body spine mechanical Analysis	the biomechanics of human spine (1)	Theoretical & Practical	Daily test and oral questions
15	6	Human body spine mechanical Analysis	the biomechanics of human spine (2)	Theoretical & Practical	Daily test and oral questions

### 11. Course Evaluation

- Formative Assessments: Include quizzes, in-class activities, and lab reports to provide ongoing feedback and adjust teaching approaches as needed.
- Summative Assessments: Conduct mid-term and final exams to evaluate comprehensive understanding.

### 12. Learning and Teaching Resources

Required textbooks (curricular books any)	Basic Biomechanics (Susan J. Hall)
Main references (sources)	Basic Biomechanics (Susan J. Hall)

Recommended books and references (scientific journals, reports...)	Journal of Biomechanics, ISSN 0021-9290
Electronic References, Websites	<a href="http://www.sciencedirect.com">www.sciencedirect.com</a>