# Course Syllabus

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|---|---|---|---|
| **Course title:** | Kinesiology & Biomechanics | **Course No:** | 1201105 |
| **Course level:** | First year | **Course prerequisite (s) and/or co-requisite (s):** | 1201101/Obligatory |
| **Lecture time:** | T/W (12:00-13:00) | **Credit hours:** | 2 Hours |

## Academic Staff Specifics

| Name | Rank | Location | Email address |
|---|---|---|---|
| **Prof.Dr.**Samah Hosney Nagib | Professor | Physical Therapy Department | Samahnagib@ymail.com |

## Course Description

This course includes the basic concepts and terminology of kinesiology. It deals with the different types and analysis of forces and their applications on the human body. The use of mechanics in physiotherapy. Also, it includes understanding of normal biomechanics of bone and soft tissues under normal and pathological conditions.

## Course Objectives

The course is designed to help the student should be able to identify the basic biomechanical principles and its application on human body.

# Learning Outcome

**Knowledge and understanding, by the end of this course, students should be able to:**

1) Define force as one of the basic concepts of the laws of mechanics with its characteristics and types.
2) Illustrate the characteristics of muscular force.
3) Outline the different types of muscle contraction.
4) Describe the basic characteristics of the different types of force system.
5) Define the center of gravity and the factors affecting it.
6) Restate what's meant by stability and illustrate the factors affecting it.
7) Recognize the different types of simple body machines and describe the components of each of them.
8) Analyze forces with respect to force resolution and composition.
9) Differentiate between different types of muscle contraction.
10) Predict the type of force system for different groups of muscles.
11) Explain the values of determination of segmental and total body center of gravity.
12) Propose a graduation of different exercises based on the concept of locating the center of gravity.
13) Point out the effect of changing the base of support during walking on stability.

**Cognitive skills (thinking and analysis):**

Interactive learning by participating the student into the lectures content.

**Communication skills (personal and academic):**

Review concept at office hours

**Practical and subject specific skills (Transferable Skills**):

Doing homework and simple reports.

# Course Outline and Time schedule

| Week | Course Outline |
|---|---|
| First week | Introduction to human movement |
| 2nd week | Joints (types & movement) |
| 3rd week | Center of Gravity |
| 4th week | Factors affecting center of Gravity |
| 5th week | Force |
| 6th week | Types of force |
| 7th week | Stability |
| 8th week | Factors affecting stability |
| 9th week | Lever system |
| 10th week | Planes & axes |
| 11th week | Fluid motion |
| 12th week | Normal gait |
| 13th week | Pathological gait |

# Presentation methods and techniques

**Methods of teaching varied according to the type of text, student and situation. The following techniques are usually used:**

- Interactive Live Lectures (blended education)
- Cooperative learning.
- Discussion.
- Learning by activities.
- Connecting students with different sources of information

# Sources of information and Instructional Aids

- Computer … power point …etc.
- Transparencies
- Distance learning
- Library sources

# Assessment Strategy and its tools

The assigned syllabus is assessed and evaluated through: feedback and the skills that are acquired by the students

**The tools:**

1- Diagnostic tests to identify the student's level and areas of weakness
2- Formal (stage) evaluation
a) Mid-term exam
b) Class Participation
c) Activity file
d) Final exam

# Tool & Evaluation

The following table clarifies the organization of the assessment schedule:

| Test | Grade |
|---|---|
| Mid-term Exam | 25 |
| Activities & Participation | 25 |
| Final Exam | 50 |
| Total | 100 |

# Activities and Instructional Assignment

Practical assignments to achieve the syllabus objectives.

## Regulations to maintain the teaching-Learning Process in the Lecture:

1- Regular attendance online live lectures.
2- Respect of commencement and ending of the lecture time.
3- Positive relationship between student and teacher.
4- Commitment to present assignments on time.
5- High commitment during the lecture to avoid any kind of disturbance and distortion.
6- High sense of trust and sincerity when referring to any piece of information and to mention the source.
7- The student who absents himself should submit an accepted excuse.
8- University relevant regulations should be applied in case the student's behavior is not accepted.
9- Allowed Absence percentages are (not exceed 15 %.).

# References


- Kerr, An Introduction to Human Movement and Biomechanics, 7th Edition, Elsevier,2019
- Mansfield: Essentials of Kinesiology for the Physical Therapist Assistant, 3rd Edition, Elsevier,2019
- Neumann D.A: Kinesiology of the musculoskeletal system. Mosby: St louis, London, 2002.
- Zeevi: Clinical Biomechanics. Churchill Livingstone; New York, London; 2000.