



Al-Mustaqbal University College
Building & Construction Technology
Engineering



Engineering Mechanics

2021 - 2022

First Stage

Dr. Mohammed Zuhair
Dr. Mayadah W. Falah



Content:

I-Static

Chapter One: Basic Concepts

- 1.1** Introduction
- 1.2** Composition & Resolution of Forces
- 1.3** Moment of a Force
- 1.4** Moment of a Couples

Chapter Two: Resultant of force systems

- 2.1** Resultant of Coplanar Concurrent Force System
- 2.2** Resultant of Coplanar Parallel Force System
- 2.3** Resultant of Coplanar General Force System

Chapter Three: Equilibrium

- 3.1** Introduction
- 3.2** Equilibrium of Coplanar Concurrent Force system
- 3.3** Equilibrium of Coplanar Parallel Force system
- 3.4** Equilibrium of Coplanar General Force system
- 3.5** Types of External Loads

Chapter Four: Analysis of Structures

- 4.1** Analysis of Frames
- 4.2** Analysis of Trusses
 - 4.2.1** Method of Joints
 - 4.2.2** Method of Sections
 - 4.2.3** Mixed Method (Joint & Section)

Chapter Five: Friction

- 5.1** Introduction

5.2 Theory of Friction

5.3 Types of Friction Problems

5.3.1 Motion is Not Specified in The Problem

5.3.2 Impending Motion is Specified in all possible surfaces

5.3.3 Impending Motion is Specified in some surfaces of Contact

Chapter Six: Centroid and Centers of Gravity

6.1 Introduction

6.2 Centroid of Composite Figure

Chapter Seven: Second Moment or Moment of Inertia

7.1 Introduction

7.2 Moment of Inertia of Composite Figure

II-Dynamic

Chapter One: Kinematics-Absolute Motion

Chapter Two: Kinematics-Relative Motion

Chapter Three: Kinetics-Force, Mass and Acceleration

References

1. "Engineering Mechanics" Seventh Edition, J. L. Meriam, 2011.
2. "Engineering Mechanics- Statics" Thirteenth Edition, R. C. HIBBELER, 2012.
3. "Engineering Mechanics - Statics and Dynamics", A. Nelson, 2009.
4. "Vector Mechanics for Engineers - Statics and Dynamics" Eleventh Edition, P. Beer, 2015.
5. "Engineering Mechanics- Statics" Vikrant Sharma, 2018.