



**MUTAH UNIVERSITY**  
**Faculty of Engineering**  
**Department of Mechanical Engineering**



**Course Syllabus**  
**Study Plan 2017**

Course Code	Course Name	Credits	Contact Hours
0402203	Dynamics	3	3T

**INSTRUCTOR/COORDINATOR**

<b>Name</b>	Dr Ibrahim Alkhazali
<b>Email/Office</b>	<a href="mailto:ibrahimk@mutah.edu.jo">ibrahimk@mutah.edu.jo</a>
<b>Office Hours</b>	S,M,T 12:00 – 13:00
<b>Classroom/Time</b>	S,T,T 10:00-11:00, M,W 09:30-11:00

**TEXTBOOK**

<b>Title</b>	Engineering Mechanics Dynamics
<b>Author/Year/Edition</b>	R. C. Hibbeler / 2003/ 10th edition

**Other Supplemental Materials**

<b>Title</b>	Engineering Mechanics: Dynamics
<b>Author/Year/Edition</b>	James L. Meriam, L. G. Kraige, J. N. Bolton /2015 /8th edition

**SPECIFIC COURSE INFORMATION**

**A. Brief Description of the Content of the Course (Catalog Description)**

- Kinematics of Particles
- Kinetics of Particles
  - Forces and Acceleration for Particles
  - Work and Energy for Particles
  - Impulse and Momentum for Particles
- Kinematics of Planar Motion of Rigid bodies
- Kinetics of Planar Motion of Rigid bodies
  - Forces and Acceleration for rigid bodies
  - Work and Energy for rigid bodies
  - Impulse and Momentum for rigid bodies

<ul style="list-style-type: none"> <li>• Introduction to Vibrations</li> </ul>														
<b>B. Pre-requisites (P) or Co-requisites (C)</b>														
Statics (0403200) (P)														
<b>C. Course Type (Required or Elective)</b>														
Required														
<b>SPECIFIC GOALS</b>														
<b>A. Course Learning Objectives (CLOs)</b>														
By the end of this course, the student should be able to:														
<b>CLO1:</b> Understand and analyze the dynamics of particles in three-dimensional motions [1].														
<b>CLO2:</b> Analyze the dynamics of rigid bodies, and systems of rigid bodies in planar motion [1].														
<b>CLO3:</b> Learn the principles of energy and momentum of rigid bodies [1].														
<b>CLO4:</b> Learn the basics of vibration [1].														
<b>B. Student Learning Outcomes (SOs) Addressed by the Course</b>														
<table border="1"> <thead> <tr> <th>1</th> <th>2</th> <th>3</th> <th>4</th> <th>5</th> <th>6</th> <th>7</th> </tr> </thead> <tbody> <tr> <td>✓</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	1	2	3	4	5	6	7	✓						
1	2	3	4	5	6	7								
✓														

<b>BRIEF LIST OF TOPICS TO BE COVERED</b>		
<b>List of Topics</b>	<b>No. of Weeks</b>	<b>Contact Hours</b>
Kinematics of Particles	2	6
Kinematics of Planar motion of Rigid bodies	3	9
Relative motion of rigid bodies and Coriolis acceleration	1	3
Forces and Acceleration for Particles	1	3
Forces and Acceleration for Rigid bodies	2	6
Work and Energy for Particles	1	3
Work and Energy for Rigid bodies	1	3
Impulse and Momentum for Particles	1	3
Impulse and Momentum for Rigid bodies	1	3
Introduction to Vibrations	1	3
<b>Final Exam</b>	-	-
<b>Total</b>	<b>14</b>	<b>42</b>

<b>EVALUATION</b>		
<b>Assessment Tool</b>	<b>Due Date</b>	<b>Weight (%)</b>
Mid Exam	According to the university calendar	30
Course Work (Homeworks, Quizzes, Projects, ...etc.)	One week after being assigned	20
Final Exam	According to the university calendar	50

<b>ABET's Students Learning Outcomes (Criterion # 3)</b>		
<b>Relationship to program outcomes</b>		
<b>ABET 1-7</b>	<b>Engineering Student Outcomes</b>	
1	√	an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2		an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
3		an ability to communicate effectively with a range of audiences.
4		an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
5		an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
6		an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
7		an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.