



## Course Specifications: Mechanics II



### 1. Basic Information

<b>Program Title</b>	All Academic programs
<b>Department offering the Program</b>	
<b>Department Responsible for the Course</b>	Engineering Mathematics and Physics
<b>Course Code</b>	BAS 014
<b>Year/ Level</b>	Preparatory year - Second semester
<b>Specialization</b>	Faculty requirement
<b>Authorization data of course specification</b>	

<b>Teaching Hours</b>	Lectures	Tutorial	Practical
	2	2	0

### 2. Course aims:

No.	Aim
1	Apply knowledge of mathematics to solve engineering problems related to the motion of particles and Motion of rigid body

### 3. Learning Outcomes (LOs):

A1.1	Select appropriate mathematical tools to analyze the distributed loads and Fluid statics (gates).
A1.2	Apply Method of joints and method of sections to find internal forces in trusses.
A8.1	Communicate verbally with the colleagues.
A9.1	Demonstrate the concepts of Kinematics of a particle, Equations of motion in different coordinates.
A9.2	Study the general curvilinear motion, and Motion of projectiles
A9.3	Apply knowledge of mathematics and science to solve engineering applied problems on dry frictions.

### 4. Course Contents:

No.	Topics
1	Distributed loads and Fluid statics
2	Simple Trusses, Method of Joints and Method of Sections
3	Dry Friction and its application, Frictional forces on Screws and Wedges
4	Kinematics of a particle and General curvilinear motion
5	Curvilinear motion in different coordinates

### 5. Teaching and Learning Methods:

No.	Teaching Method
1	Interactive lectures (hybrid learning)



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2	Discussion Sessions
3	Flipped classroom

### 6. Teaching and Learning Methods for Disable Students:

No.	Teaching Method	Reason
1	Additional Tutorials	
2	Online lectures and assignments	

### 7. Student Assessment:

#### 7.1 Student Assessment Methods:

No.	Assessment Method	LOs
1	Mid Term Examination	A1.1,A9.3
2	Semester work (quizzes, presentation, portfolio)	A8.1, A9.1, A9.2, A9.3
3	Final Term Examination	A1.1,A9.2, A9.3

#### 7.2 Assessment Schedule:

No.	Assessment Method	Weeks
1	Mid Term Examination	8
2	Semester work (quizzes, presentation, portfolio)	Weekly
3	Final Term Examination	15

#### 7.3 Weighting of Assessment:

No.	Assessment Method	Weights
1	Mid Term Examination	15%
2	Semester work (quizzes, presentation, portfolio)	15%
3	Final Term Examination	70%
Total		100%

### 8. List of References

No.	Reference List
1	R.C. Hibbeler, " Engineering Mechanics: Statics, 11th Edition", Pearson Prentice Hall, 2006.
2	F. P. Beer, and E. R. Johnston, Jr., D. F. Cornwell, E. R. Eisenberg, " Vector Mechanics for Engineering, Statics and Dynamics, 9th Edition" , McGraw-Hill, New York, 2010.

### 9. Facilities Required for Teaching and Learning:

No.	Facility
1	Lecture Classroom
2	White Board
3	Data Show System
4	Visualizer
5	Presenter
6	Sound System



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### 10. Matrix of Knowledge and Skills of the Course:

No	Topic	Aim	LO's
1	Distributed loads and Fluid statics	1	A1.1, A8.1
2	Simple Trusses, Method of Joints and Method of Sections	1	A1.1, A8.1, A9.2
3	Dry Friction and its application, Frictional forces on Screws and Wedges	1	A1.1, A8.1, A9.2
4	Kinematics of a particle and General curvilinear motion	1	A1.1, A3.2, A8.1
5	Curvilinear motion in different coordinates, projectiles.	1	A1.2, A9.2, A9.1, A9.2, A9.3

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**Head of Department:** Prof. Dr. Mohamed Mohamed El Metwally El Gamal.

**Date of Approval:**



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<b>Course: Mechanics II</b>	
<b>Program LOs</b>	<b>Course LOs</b>
A1. Identify, formulate, and solve complex engineering problems by applying engineering fundamentals, basic science and mathematics.	A1.1 Select appropriate mathematical tools to analyze the distributed loads and Fluid spastics(gates).  A1.2 Apply Method of joints and method of sections to find internal forces in trusses.
A8. Communicate effectively—graphically, verbally and in writing—with a range of audiences using contemporary tools.	A8.1 Communicate verbally with the colleagues.
A9. Use creative, innovative and flexible thinking and acquire entrepreneurial and leadership skills to anticipate and respond to new situations.	A9.1 Demonstrate the concepts of Kinematics of a particle, Equations of motion in different coordinates.  A9.2 Study the general curvilinear motion, and Motion of projectiles  A9.3 Apply knowledge of mathematics and science to solve engineering applied problems on dry frictions.