

Republic of Yemen

Ministry of Higher Education & Scientific Research
Council of Academic Accreditation & Quality

Assurance of Higher Education (CAQA)



21 September University for medical and Applied Science

Faculty of Engineering and Computer
Department of Biomedical Engineering

Program of Biomedical Engineering



Course Specification of
Statics and Dynamics

Course Code. (07.12.708)

2024



T4: This Template is Developed and Approved by CAQA-Yemen, 2023

Prepared by:	Reviewed by:	Head of the Department:	Quality Unit:	Dean:
Dr. Adel Alkdsi	Dr. -----	Dr. Awadh Al-Kubati	Dr. Mohammed Al-shamahi	Dr. Abdulrahman Obaid

I. General Information:

1.	Course Title:	Statics and Dynamics				
2.	Course Code:	07.12.708				
3.	Credit Hours:	Credit Hours	Theory Contact Hours		Practical Contact Hours	
			Lecture	Tutorial /Seminar	Lab	Clinical
		2	2	--	--	--
4.	Level/ Semester at which this Course is offered:	2 nd Level / 1 st Semester				
5.	Pre –Requisite (if any):	Biophysics				
6.	Co –Requisite (if any):	None				
7.	Program (s) in which the Course is Offered:	Bachelor of Biomedical Engineering				
8.	Language of Teaching the Course:	English/Arabic				
9.	Location of Teaching the Course:	Faculty of Medical Technology				
10.	Prepared by:	Dr. Adel Alkdsi				
11.	Date and Number of Approval by Council:					

II. Course Description:

Develop an understanding of the principles of statics and dynamics, and the ability to analyze problems in a systematic and logical manner, including the ability to draw free-body diagrams. Ability to analyze the statics of trusses, frames and machine and the dynamics of particles, systems of particles and rigid bodies.

III. Course Intended Learning Outcomes (CILOs) :
Upon successful completion of the course, students will be able to:

Referenced PILOs

A. Knowledge and Understanding:		I, P or M/A		
a1	A knowledge of internal forces and moments in members.	I	A1	Explain the appropriate models, theories, mathematical foundations, and techniques related to biomedical engineering technology context.

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a2	Understanding of the analysis of distributed loads.	I	A4	Understand an examples of a biomedical engineering technology concept and methods related to maintenance, measurement techniques, programming, creative engineering solutions, analytical skills, applied to healthcare quality and problems of medical devices issues.
B. Intellectual Skills:				
b1	Use the mathematical theories and engineering principles to calculate centroids and moments of inertia.	P	B1	Use the basic science, mathematical theories, engineering principles to analyze the problems of devices and/or processes relevant to biomedical engineering fields.
b2	Analyses of kinematic, kinetic, energy, and momentum methods for particles, systems of particles, and rigid bodies.	P	B2	Analyze the impacts of problems related to the Biomedical equipments and its solution principles in a creative manner by using a systematic and analytical thinking methods.
C. Professional and Practical Skills:				
c1	Construct free-body diagrams and to calculate the reactions necessary to ensure static equilibrium.	P	C3	Develop an engineering approach, engineering equipment, instruments to maintenance and conduct experiments, and present results in the biomedical engineering practice.
D. Transferable Skills:				
d1	Pursue ongoing professional development and lifelong learning in the statics and dynamics filed.	P	D4	Pursue ongoing professional development and lifelong learning in the biomedical engineering filed.

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I= Introduced, P=Practiced or M/A= Mastered/Advanced

(A) Alignment of Course Intended Learning Outcomes (Knowledge and Understanding) to Teaching Strategies and Assessment Methods:			
	Course Intended Learning Outcomes	Teaching Strategies	Assessment Strategies
a1	A knowledge of internal forces and moments in members.	<ul style="list-style-type: none"> - Interactive lectures - Discussions - Exercises - Self-learning 	<ul style="list-style-type: none"> - Midterm theoretical exam - Final theoretical exam - Quizzes - Homework
a2	Understanding of the analysis of distributed loads.		
(B) Alignment of Course Intended Learning Outcomes (Intellectual Skills) to Teaching Strategies and Assessment Methods:			
	Course Intended Learning Outcomes	Teaching Strategies	Assessment Strategies
b1	Use the mathematical theories and engineering principles to calculate centroids and moments of inertia.	<ul style="list-style-type: none"> - Interactive lectures - Discussions - Problem-based learning - Exercises - Self-learning 	<ul style="list-style-type: none"> - Midterm theoretical exam - Final theoretical exam - Quizzes - Homework
b2	Analyses of kinematic, kinetic, energy, and momentum methods for particles, systems of particles, and rigid bodies.		
(C) Alignment of Course Intended Learning Outcomes (Professional and Practical Skills) to Teaching Strategies and Assessment Methods:			
	Course Intended Learning Outcomes	Teaching Strategies	Assessment Strategies
c1	Construct free-body diagrams and to calculate the reactions necessary to ensure static equilibrium.	<ul style="list-style-type: none"> - Interactive lectures - Exercises - Problem-based learning 	<ul style="list-style-type: none"> - Midterm theoretical exam - Final theoretical exam - Homework

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(D) Alignment of Course Intended Learning Outcomes (Transferable Skills) to Teaching Strategies and Assessment Methods:			
	Course Intended Learning Outcomes	Teaching Strategies	Assessment Strategies
d1	Pursue ongoing professional development and lifelong learning in the statics and dynamics filed.	<ul style="list-style-type: none"> Collaborative problem-solving exercises 	<ul style="list-style-type: none"> Reports

IV. Course Contents:					
A. Theoretical Aspect:					
No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
1	Introduction	<ul style="list-style-type: none"> What is Mechanics? Fundamental Concepts and Principles Systems of Units Converting between Two Systems of Units Method of Solving Problems Numerical Accuracy 	1 st	2	a1
2	Statics of Particles	<ul style="list-style-type: none"> Addition of Planar Forces Adding Forces by Components Forces and Equilibrium in a Plane 	2 nd	2	a1, a2, b1
3	Statics of Particles	<ul style="list-style-type: none"> Adding Forces in Space Forces and Equilibrium in Space 	3 ^{ed}	2	a1, a2, b1
4	Rigid Bodies: Equivalent Systems of Forces	<ul style="list-style-type: none"> Forces and Moments Moment of a Force about an Axis Couples and Force-Couple Systems Simplifying Systems of Forces 	4 th	2	a2, b1, b2
5	Equilibrium of Rigid Bodies	<ul style="list-style-type: none"> Equilibrium in Two Dimensions Two Special Cases Equilibrium in Three Dimensions 	5 th	2	a2, b1, b2
6	Distributed Forces: Centroids and Centers of	<ul style="list-style-type: none"> Planar Centers of Gravity and Centroids Further Considerations of Centroids Centers of Gravity and Centroids 	6 th	2	b1, b2

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No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
	Gravity	of Volumes			
7	Analysis of Structures	<ul style="list-style-type: none"> - Analysis of Trusses - Frames - Machines 	7 th	2	b2, d1
8	Mid-Term Theoretical Exam	<ul style="list-style-type: none"> - All previous topics 	8 th	2	a1, a2, b1, b2
9	Internal Forces and Moments	<ul style="list-style-type: none"> - Internal Forces in Members - Beams - Relations Among Load, Shear, and Bending Moment 	9 th	2	a2, b2, c1
10	Friction	<ul style="list-style-type: none"> - The Laws of Dry Friction - Wedges and Screws - Friction on Axles, Disks, and Wheels 	10 th	2	a1, a2, b1, b2
11	Distributed Forces: Moments of Inertia	<ul style="list-style-type: none"> - Moments of Inertia of Areas - Parallel-Axis Theorem and Composite Areas - Transformation of Moments of Inertia - Mass Moments of Inertia 	11 th	2	a2, b1, b2, c1
12	Kinematics of Particles	<ul style="list-style-type: none"> - Rectilinear Motion of Particles - Special Cases and Relative Motion - Graphical Solutions - Curvilinear Motion of Particles 	12 th	2	a2, b1, b2, c1
13	Kinetics of Particles: Newton's Second Law	<ul style="list-style-type: none"> - Newton's Second Law and Linear Momentum - Angular Momentum and Orbital Motion - Applications of Central-Force Motion 	13 th	2	b1, b2, c1
14	Kinematics of Rigid Bodies	<ul style="list-style-type: none"> - Translation and Fixed Axis Rotation - General Plane Motion: Velocity - Instantaneous Center of Rotation - General Plane Motion: Acceleration 	14 th	2	a2, b2, c1, d1
15	Kinematics of Rigid Bodies	<ul style="list-style-type: none"> - Analyzing Motion with Respect to a Rotating Frame - Motion of a Rigid Body in Space - Motion Relative to a Moving 	15 th	2	a1, a2, b1, b2, c1, d1

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No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
		Reference Frame			
16	Final Theoretical Exam	– All previous topics	16 th	2	a1, a2, b1, b2, c1
Number of Weeks /and Units Per Semester			16	32	

B. Practical Aspect (Lab/Clinical) (if any):

No.	Tasks/ Experiments	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
1	None			
2				
3				
4				
5				
6				
7				
8				
Number of Weeks /and Units Per Semester		14	28	

C. Tutorial Aspect (if any):

No.	Tutorial	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
1	None			
2				
3				
4				

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No.	Tutorial	Number of Weeks	Contact Hours	Learning Outcomes (CILOs)
Number of Weeks /and Units Per Semester				

VII. Assignments:

No.	Assignments	Week Due	Mark	Aligned CILOs (symbols)
1	Exercises Assignments	All Weeks	10	a1, a2, b1, b2, c1
Total			10	

VIII. Schedule of Assessment Tasks for Students During the Semester:

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Homework, Quizzes & Assignments	All Weeks	10	10%	a1- d1
2	Mid-Term Theoretical Exam	Week 9	20	20%	a1, a2, b1, b2
4	Final Theoretical Exam	Week 16	70	70%	a1, a2, b1, b2, c1
Total			100%	100%	-

IX. Learning Resources:

1- Required Textbook(s) (maximum two):

- Beer, Vector Mechanics for Engineers, Statics and Dynamics, 12th ed., McGraw-Hill.

2- Essential References:

- Russell C. Hibbeler, Engineering Mechanics: Statics & Dynamics, Pearson Education 2015.

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2. A. P. Roberts, Statics and Dynamics with Background Mathematics, Cambridge University Press 2003.

3- Electronic Materials and Web Sites etc.:

Websites:

1. <https://engineeringstatics.org/>
2. https://www.engineersedge.com/Engineering_White_Papers/Design_and_Engineering_General/statics_and_dynamics_introduction_15016.htm
3. <https://oli.cmu.edu/courses/engineering-statics-open-free/>

Journals:

1. Journal of Mechanics of Materials and Structures.
2. International Journal of Dynamics and Control.

Other Web Sources:

X. Course Policies: (Based on the Uniform Students' By law (2007))

1	Class Attendance: Class Attendance is mandatory. A student is considered absent and shall be banned from taking the final exam if his/her absence exceeds 25% of total classes.
2	Tardiness: A student will be considered late if he/she is not in class after 10 minutes of the start time of class.
3	Exam Attendance/Punctuality: No student shall be allowed to the exam hall after 30 minutes of the start time, and shall not leave the hall before half of the exam time has passed.
4	Assignments & Projects: Assignments and projects must be submitted on time. Students who delay their assignments or projects shall lose the mark allocated for the same.
5	Cheating: Cheating is an act of fraud that results in the cancelation of the student's exam or assignment. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' Bylaw (2007) shall apply.
6	Forgery and Impersonation: Forgery/Impersonation is an act of fraud that results in the cancelation of the student's exam, assignment or project. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' Bylaw (2007) shall apply.
7	Other policies: The University official regulations in force will be strictly observed and students shall comply with all rules and regulations of the examination set by the Department, Faculty and University Administration.

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Faculty of Medical Technology

Department of Biomedical Engineering

Program of Biomedical Engineering

Course Plan (Syllabus) of

Statics and Dynamics

Course Code. (07.12.708)

I. Information about Faculty Member Responsible for the Course:							
Name of Faculty Member:		Office Hours					
Location & Telephone No.:							
E-mail:		SAT	SUN	MON	TUE	WED	THU

2024/2025

II. Course Identification and General Information:				
Prepared by:	Reviewed by:	Head of the Department:	Quality Unit:	Dean:
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1.	Course Title:	Statics and Dynamics				
2.	Course Code:	07.12.708				
3.	Credit Hours:	Credit Hours	Theory Contact Hours		Practical Contact Hours	
			Lecture	Tutorial /Seminar	Lab	Clinical
		2	2	--	--	--
4.	Level/ Semester at which this Course is offered:	2nd Level / 1st Semester				
5.	Pre –Requisite (if any):	Biophysics				
6.	Co –Requisite (if any):	None				
7.	Program (s) in which the Course is Offered:	Bachelor of Biomedical Engineering				
8.	Language of Teaching the Course:	English/Arabic				
9.	Location of Teaching the Course:	Faculty of Medical Technology				
10.	Prepared by:	Dr. Adel Alkdsi				
11	Date and Number of Approval by Council:					

III. Course Description:

Develop an understanding of the principles of statics and dynamics, and the ability to analyze problems in a systematic and logical manner, including the ability to draw free-body diagrams. Ability to analyze the statics of trusses, frames and machine and the dynamics of particles, systems of particles and rigid bodies.

IV. Course Intended Learning Outcomes (CILOs) :

Upon successful completion of the Course, student will be able to:

A. Knowledge and Understanding:

A. Knowledge and Understanding:

a
1 A knowledge of internal forces and moments in members.

a
2 Understanding of the analysis of distributed loads.

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B. Intellectual Skills:	
b 1	Use the mathematical theories and engineering principles to calculate centroids and moments of inertia.
b 2	Analyses of kinematic, kinetic, energy, and momentum methods for particles, systems of particles, and rigid bodies.
C. Professional and Practical Skills:	
c 1	Construct free-body diagrams and to calculate the reactions necessary to ensure static equilibrium.
d 1	Pursue ongoing professional development and lifelong learning in the statics and dynamics filed.
I= Introduced, P=Practiced or M/A= Mastered/Advanced	

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A. Knowledge and Understanding:

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V. Course Contents:

A. Theoretical Aspect:

No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours
1	Introduction	<ul style="list-style-type: none"> - What is Mechanics? - Fundamental Concepts and Principles - Systems of Units - Converting between Two Systems of Units - Method of Solving Problems - Numerical Accuracy 	1st	2
2	Statics of Particles	<ul style="list-style-type: none"> - Addition of Planar Forces - Adding Forces by Components - Forces and Equilibrium in a Plane 	2nd	2
3	Statics of Particles	<ul style="list-style-type: none"> - Adding Forces in Space - Forces and Equilibrium in Space 	3ed	2
4	Rigid Bodies: Equivalent Systems of Forces	<ul style="list-style-type: none"> - Forces and Moments - Moment of a Force about an Axis - Couples and Force-Couple Systems - Simplifying Systems of Forces 	4th	2
5	Equilibrium of Rigid Bodies	<ul style="list-style-type: none"> - Equilibrium in Two Dimensions - Two Special Cases - Equilibrium in Three Dimensions 	5th	2
6	Distributed Forces: Centroids and Centers of Gravity	<ul style="list-style-type: none"> - Planar Centers of Gravity and Centroids - Further Considerations of Centroids - Centers of Gravity and Centroids of Volumes 	6th	2
7	Analysis of Structures	<ul style="list-style-type: none"> - Analysis of Trusses - Frames - Machines 	7th	2
8	Mid-Term Theoretical Exam	<ul style="list-style-type: none"> - All previous topics 	8th	2
9	Internal Forces and Moments	<ul style="list-style-type: none"> - Internal Forces in Members - Beams - Relations Among Load, Shear, and Bending Moment 	9th	2
10	Friction	<ul style="list-style-type: none"> - The Laws of Dry Friction 	10th	2

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No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours
		<ul style="list-style-type: none"> – Wedges and Screws – Friction on Axles, Disks, and Wheels 		
11	Distributed Forces: Moments of Inertia	<ul style="list-style-type: none"> – Moments of Inertia of Areas – Parallel-Axis Theorem and Composite Areas – Transformation of Moments of Inertia – Mass Moments of Inertia 	11th	2
12	Kinematics of Particles	<ul style="list-style-type: none"> – Rectilinear Motion of Particles – Special Cases and Relative Motion – Graphical Solutions – Curvilinear Motion of Particles 	12th	2
13	Kinetics of Particles: Newton's Second Law	<ul style="list-style-type: none"> – Newton's Second Law and Linear Momentum – Angular Momentum and Orbital Motion – Applications of Central-Force Motion 	13th	2
14	Kinematics of Rigid Bodies	<ul style="list-style-type: none"> – Translation and Fixed Axis Rotation – General Plane Motion: Velocity – Instantaneous Center of Rotation – General Plane Motion: Acceleration 	14th	2
15	Kinematics of Rigid Bodies	<ul style="list-style-type: none"> – Analyzing Motion with Respect to a Rotating Frame – Motion of a Rigid Body in Space – Motion Relative to a Moving Reference Frame 	15th	2
16	Final Theoretical Exam	<ul style="list-style-type: none"> – All previous topics 	16th	2
Number of Weeks /and Units Per Semester			16	32

No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours
1	Introduction	<ul style="list-style-type: none"> – What is Mechanics? – Fundamental Concepts and Principles – Systems of Units – Converting between Two Systems of Units – Method of Solving Problems – Numerical Accuracy 	1 st	2
2	Statics of Particles	<ul style="list-style-type: none"> – Addition of Planar Forces – Adding Forces by Components 	2 nd	2

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No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours
		– Forces and Equilibrium in a Plane		
3	Statics of Particles	– Adding Forces in Space – Forces and Equilibrium in Space	3 ^{ed}	2
4	Rigid Bodies: Equivalent Systems of Forces	– Forces and Moments – Moment of a Force about an Axis – Couples and Force-Couple Systems – Simplifying Systems of Forces	4 th	2
5	Equilibrium of Rigid Bodies	– Equilibrium in Two Dimensions – Two Special Cases – Equilibrium in Three Dimensions	5 th	2
6	Distributed Forces: Centroids and Centers of Gravity	– Planar Centers of Gravity and Centroids – Further Considerations of Centroids – Centers of Gravity and Centroids of Volumes	6 th	2
7	Analysis of Structures	– Analysis of Trusses – Frames – Machines	7 th	2
8	Mid-Term Theoretical Exam	– All previous topics	8 th	2
9	Internal Forces and Moments	– Internal Forces in Members – Beams – Relations Among Load, Shear, and Bending Moment	9 th	2
10	Friction	– The Laws of Dry Friction – Wedges and Screws – Friction on Axles, Disks, and Wheels	10 th	2
11	Distributed Forces: Moments of Inertia	– Moments of Inertia of Areas – Parallel-Axis Theorem and Composite Areas – Transformation of Moments of Inertia – Mass Moments of Inertia	11 th	2
12	Kinematics of Particles	– Rectilinear Motion of Particles – Special Cases and Relative Motion – Graphical Solutions – Curvilinear Motion of Particles	12 th	2
13	Kinetics of Particles:	– Newton's Second Law and Linear Momentum	13 th	2

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No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours
	Newton's Second Law	<ul style="list-style-type: none"> Angular Momentum and Orbital Motion Applications of Central-Force Motion 		
14	Kinematics of Rigid Bodies	<ul style="list-style-type: none"> Translation and Fixed Axis Rotation General Plane Motion: Velocity Instantaneous Center of Rotation General Plane Motion: Acceleration 	14 th	2
15	Kinematics of Rigid Bodies	<ul style="list-style-type: none"> Analyzing Motion with Respect to a Rotating Frame Motion of a Rigid Body in Space Motion Relative to a Moving Reference Frame 	15 th	2
16	Final Theoretical Exam	<ul style="list-style-type: none"> All previous topics 	16 th	2
Number of Weeks /and Units Per Semester			16	32

No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours
1	Introduction	<ul style="list-style-type: none"> What is Mechanics? Fundamental Concepts and Principles Systems of Units Converting between Two Systems of Units Method of Solving Problems Numerical Accuracy 	1st	2
2	Statics of Particles	<ul style="list-style-type: none"> Addition of Planar Forces Adding Forces by Components Forces and Equilibrium in a Plane 	2nd	2
3	Statics of Particles	<ul style="list-style-type: none"> Adding Forces in Space Forces and Equilibrium in Space 	3ed	2
4	Rigid Bodies: Equivalent Systems of Forces	<ul style="list-style-type: none"> Forces and Moments Moment of a Force about an Axis Couples and Force-Couple Systems Simplifying Systems of Forces 	4th	2
5	Equilibrium of Rigid Bodies	<ul style="list-style-type: none"> Equilibrium in Two Dimensions Two Special Cases Equilibrium in Three Dimensions 	5th	2
6	Distributed Forces: Centroids	<ul style="list-style-type: none"> Planar Centers of Gravity and Centroids Further Considerations of Centroids Centers of Gravity and Centroids of 	6th	2

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No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours
	and Centers of Gravity	Volumes		
7	Analysis of Structures	<ul style="list-style-type: none"> - Analysis of Trusses - Frames - Machines 	7th	2
8	Mid-Term Theoretical Exam	<ul style="list-style-type: none"> - All previous topics 	8th	2
9	Internal Forces and Moments	<ul style="list-style-type: none"> - Internal Forces in Members - Beams - Relations Among Load, Shear, and Bending Moment 	9th	2
10	Friction	<ul style="list-style-type: none"> - The Laws of Dry Friction - Wedges and Screws - Friction on Axles, Disks, and Wheels 	10th	2
11	Distributed Forces: Moments of Inertia	<ul style="list-style-type: none"> - Moments of Inertia of Areas - Parallel-Axis Theorem and Composite Areas - Transformation of Moments of Inertia - Mass Moments of Inertia 	11th	2
12	Kinematics of Particles	<ul style="list-style-type: none"> - Rectilinear Motion of Particles - Special Cases and Relative Motion - Graphical Solutions - Curvilinear Motion of Particles 	12th	2
13	Kinetics of Particles: Newton's Second Law	<ul style="list-style-type: none"> - Newton's Second Law and Linear Momentum - Angular Momentum and Orbital Motion - Applications of Central-Force Motion 	13th	2
14	Kinematics of Rigid Bodies	<ul style="list-style-type: none"> - Translation and Fixed Axis Rotation - General Plane Motion: Velocity - Instantaneous Center of Rotation - General Plane Motion: Acceleration 	14th	2
15	Kinematics of Rigid Bodies	<ul style="list-style-type: none"> - Analyzing Motion with Respect to a Rotating Frame - Motion of a Rigid Body in Space - Motion Relative to a Moving Reference Frame 	15th	2
16	Final Theoretical Exam	<ul style="list-style-type: none"> - All previous topics 	16th	2

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No.	Units/Topics List	Sub Topics List	Number of Weeks	Contact Hours
Number of Weeks /and Units Per Semester			16	32

B. Case Studies and Practical Aspect:

No.	Tasks/ Experiments	Number of Weeks	Contact Hours
1	None		
2			
3			
4			
5			
6			
7			
8			
Number of Weeks /and Units Per Semester		14	28

No.	Tasks/ Experiments	Number of Weeks	Contact Hours
1	None		
2			
3			
4			
5			
6			
7			
8			
Number of Weeks /and Units Per Semester		14	28

No.	Tasks/ Experiments	Number of Weeks	Contact Hours
1	None		
2			
3			
4			
5			
6			
7			

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No.	Tasks/ Experiments	Number of Weeks	Contact Hours
8			
Number of Weeks /and Units Per Semester		14	28

C. Tutorial Aspect:

No.	Tutorial	Number of Weeks	Contact Hours
1	None		
2			
3			
4			
Number of Weeks /and Units Per Semester			

VI. Teaching Strategies of the Course:

- Interactive lectures
- Discussions
- Problem-based learning
- Exercises
- Self-learning
- Collaborative problem-solving exercises

VII. Assessment Methods of the Course:

- Midterm theoretical exam
- Final theoretical exam
- Quizzes
- Homework
- Reports

VIII. Assignments:

Prepared by:	Reviewed by:	Head of the Department:	Quality Unit:	Dean:
Dr. Adel Alkdsi	Dr. ----	Dr. Awadh Al-Kubati	Dr. Mohammed Al-shamahi	Dr. Abdulrahman Obaid

No.	Assignments	Week Due	Mark	Align- ed CLOs (s y n b o l s)
1	Exercises Assignments	All Weeks	10	a 1 , a 2 , b 1 , b 2 , c 1
Total			10	

IX. Schedule of Assessment Tasks for Students During the Semester:

Prepared by:	Reviewed by:	Head of the Department:	Quality Unit:	Dean:
Dr. Adel Alkdsi	Dr. ----	Dr. Awadh Al-Kubati	Dr. Mohammed Al-shamahi	Dr. Abdulrahman Obaid

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligning Course Learning Outcomes
1	Homework, Quizzes & Assignments	All Weeks	10	10%	a1, d1
2	Mid-Term Theoretical Exam	Week 9	20	20%	a1, a2, b1, b2
4	Final Theoretical Exam	Week 16	70	70%	a1

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No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Courses Learning Outcomes
					a2 b1 b2 c1
Total			100%	100%	-

X. Learning Resources:

1- Required Textbook(s) (maximum two):

Prepared by:	Reviewed by:	Head of the Department:	Quality Unit:	Dean:
Dr. Adel Alkdsi	Dr. ----	Dr. Awadh Al-Kubati	Dr. Mohammed Al-shamahi	Dr. Abdulrahman Obaid

1. Beer, Vector Mechanics for Engineers, Statics and Dynamics, 12th ed., McGraw-Hill.
2- Essential References:
1. Russell C. Hibbeler, Engineering Mechanics: Statics & Dynamics, Pearson Education 2015. 2. A. P. Roberts, Statics and Dynamics with Background Mathematics, Cambridge University Press 2003.
3- Electronic Materials and Web Sites etc.:
Websites:
1. https://engineeringstatics.org/ 2. https://www.engineersedge.com/Engineering_White_Papers/Design_and_Engineering_General/statics_and_dynamics_introduction_15016.htm 3. https://oli.cmu.edu/courses/engineering-statics-open-free/
Journals:
1. Journal of Mechanics of Materials and Structures. 2. International Journal of Dynamics and Control.
Other Web Sources:
1-

XI. Course Policies: (Based on the Uniform Students' Bylaw (2007))

X. Course Policies: (Based on the Uniform Students' By law (2007))	
1	Class Attendance: Class Attendance is mandatory. A student is considered absent and shall be banned from taking the final exam if his/her absence exceeds 25% of total classes.
2	Tardiness: A student will be considered late if he/she is not in class after 10 minutes of the start time of class.
3	Exam Attendance/Punctuality: No student shall be allowed to the exam hall after 30 minutes of the start time, and shall not leave the hall before half of the exam time has passed.
4	Assignments & Projects: Assignments and projects must be submitted on time. Students who delay their assignments or projects shall lose the mark allocated for the same.
5	Cheating: Cheating is an act of fraud that results in the cancelation of the student's exam or assignment. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' Bylaw (2007) shall apply.
6	Forgery and Impersonation: Forgery/Impersonation is an act of fraud that results in the cancelation of the student's exam, assignment or project. If it takes place in a final exam, the penalties stipulated for in the Uniform Students' Bylaw (2007) shall apply.

Prepared by:	Reviewed by:	Head of the Department:	Quality Unit:	Dean:
Dr. Adel Alkdsi	Dr. ----	Dr. Awadh Al-Kubati	Dr. Mohammed Al-shamahi	Dr. Abdulrahman Obaid

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Other policies:

The University official regulations in force will be strictly observed and students shall comply with all rules and regulations of the examination set by the Department, Faculty and University Administration.

Prepared by:

Dr. Adel
Alkdsi

Reviewed by:

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Head of the
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Dr. Awadh Al-Kubati

Quality Unit:

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Dean:

Dr. Abdulrahman
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