Sana'a University
Faculty of Engineering
Mechanical Engineering Department
Mechanical Engineering Program

38. Course Specification of Mechanical Vibrations

I. Course Identification and General Information:

1.	Course Title:	Mechanical Vibrations.				
2.	Course Code & Number:	ME222				
3.	Credit hours:	C.H				TOTAL CR. HRS.
		Th.	Seminar/Tu	Pr	Tr.	
		2	2	-	-	3
4.	Study level/ semester at which this course is offered:	Third Year- Second Semester.				
5.	Pre –requisite (if any):	Mechanics of Machines.				
6.	Co –requisite (if any):	None.				
7.	Program (s) in which the course is offered:	Mechanical Engineering Program.				
8.	Language of teaching the course:	English Language.				
9.	Location of teaching the course:	Mechanical Engineering Department.				
10.	Prepared By:	Asst. Prof. Dr. Abdullah Dhaiban				
11.	Date of Approval:					

II. Course Description:

The aims of this course are to provide students with the basic knowledge and skills of analysis and/or use of computer software of various mechanical systems , such as Matlab, and formulation of mathematical models of problems in vibrations. This course will also provide students with the ability to select and design the appropriate isolation, absorption, and control system of vibration for the application of various mechanical systems.

	III. Alignment course intended learning outcomes (CILOs)	Referenced PILOs
a1	Recognize fundamental principles of mathematics, science and engineering necessary to solve vibration problems relevant to mechanical engineering fields.	A1
a2	Explain concepts and principles of mechanical vibrations and characteristics of free and force damped and undamped vibration systems.	A2

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b1	Create equations of motions and develop models for a free and force damped and undamped vibration systems, find engineering solutions and realize physical systems in innovative ways.	B1
b2	Solve problems of one- and multi-DOF systems, free and force (harmonic) vibration, viscous and hysteric damping under general forcing condition.	B2
c1	Use analytical and/or computational methods, such as Matlab, to determine response of single-degree-of-freedom or two-degree of freedom vibration systems.	C1
c2	Apply vibration principles and analytical tools in the design of various engineering systems and devices.	C3
d1	Inspect the mechanical vibration systems used in daily life.	D3
d2	Show communication skills both orally and in writing technical reports.	D5

(A) Alignment Course Intended Learning Outcomes of Knowledge and Understanding to Teaching Strategies and Assessment Strategies:		
Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
a1- Recognize fundamental principles of mathematics, science and engineering necessary to solve vibration problems relevant to mechanical engineering fields.	Lectures, Tutorials, Self-Learning Problems Seminars	Examinations, Homework Presentations
a2- Explain concepts and principles of mechanical vibrations and characteristics of free and force damped and undamped vibration systems.	Lectures, Tutorials, Self-Learning Problems Seminars	Examinations, Homework Presentations

(B) Alignment Course Intended Learning Outcomes of Intellectual Skills to Teaching Strategies and Assessment Strategies:		
Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
b1- Create equations of motions and develop models for a free and force damped and undamped vibration systems, find solutions and realize engineering physical systems in innovative ways.	Lectures, Tutorials, Self-Learning Problems Seminars	Examinations, Homework Presentations
b2- Solve problems of one- and multi-DOF systems, free and force (harmonic) vibration, viscous and hysteric damping under general forcing condition.	Lectures, Tutorials, Self-Learning Problems Seminars	Examinations, Homework Presentations

(C) Alignment Course Intended Learning Outcomes of Professional and Practical Skills to Teaching Strategies and Assessment Strategies:		
Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies

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c1- Use analytical and/or computational methods, such as Matlab, to determine response of single-degree-of-freedom or two-degree of freedom vibration systems.	Computer Laboratory, Seminars, Projects	Examinations, Laboratory Reports, Presentations, Individual and Group Project Reports.
c2- Apply vibration principles and analytical tools in the design of various engineering systems and devices	Tutorials, Computer Laboratory, Seminars, Projects	Examinations, Laboratory Reports, Presentations, Individual and Group Project Reports.

(D) Alignment Course Intended Learning Outcomes of Transferable Skills to Teaching Strategies and Assessment Strategies:

Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
d1- Inspect the mechanical vibration systems used in daily life.	Tutorials, Computer Laboratory, Seminars, Projects, Self-Learning Problems	Presentations, Reports. Attendance of Lectures and Tutorials
d2- Show communication skills both orally and in writing technical reports.	Seminars, Computer Laboratory, Self-Learning Problems, Projects.	Attendance of Lectures and Tutorials Presentations, Reports

IV. Course Content:

A – Theoretical Aspect:

Order	Units/Topics List	Learning Outcomes	Sub Topics List	Number of Weeks	Contact Hours
1.	Fundamentals of Vibration	a2, b1	▪ Basic Concepts of Vibrations ▪ Classification of Vibrations ▪ Vibration Analysis Procedure	1	2

			▪ Spring Elements, Mass Elements, Damping Elements.		
2.	Harmonic Motion	a1, a2,b1,b2	▪ Vectorial Representation of Harmonic Motion ▪ Complex-Number Representation of Harmonic Motion, ▪ Complex Algebra, ▪ Operations on Harmonic Functions, ▪ Definitions and Terminology.	1	2
3.	Harmonic Analysis	a1, a2,b1,b2, c1	▪ Fourier Series Expansion, ▪ Complex Fourier Series ▪ Frequency Spectrum, ▪ Time- and Frequency-Domain Representations, ▪ Examples Using MATLAB.	1	2
4.	Free Vibration of Single-Degree-of-Freedom Systems	a1, a2,b1,b2,	▪ Free Vibration of an Undamped Translational System, ▪ Equation of Motion Using Newton S Second Law of Motion, ▪ Equation of Motion Using Other Methods, ▪ Equation of Motion of a Spring-Mass System in Vertical Position, Solution, ▪ Harmonic Motion.	1	2
5.	Free Vibration of Single-Degree-of-Freedom Systems	a1, a2,b1,b2	▪ Free Vibration of an Undamped Torsional System, ▪ Response of First Order Systems and Time Constant, ▪ Rayleigh's Energy Method.	1	2
6.	Free Vibration of Single-	a1, a2,b1,b2	▪ Free Vibration with Viscous Damping: Equation of Motion	1	2

	Degree-of-Freedom Systems		▪ Logarithmic Decrement ▪ Energy Dissipated in Viscous Damping ▪ Torsional Systems with Viscous Damping.		
7.	Harmonically Excited Vibration	a1, a2,b1,b2	▪ Equation of Motion ▪ Response Of Un-Damped System Under Harmonic Force.	1	2
8.	Mid Term Exam	a1, a2,b1,b2, c1,d1	All Previous Topics	1	2
9.	Harmonically Excited Vibration	a1, a2,b1,b2	▪ Response of Damped System Under Harmonic Force ▪ Response of Damped System Under $F(t) = Fe^{i\omega t}$	1	2
10.	Harmonically Excited Vibration	a1, a2,b1,b2	▪ Response of a Damped System Under the Harmonic Motion of the Base, ▪ Response of a Damped System Under Rotating Unbalance.	1	2
11.	Vibration Under General Forcing Conditions	a1, a2,b1,b2	▪ Response Under a General Periodic Force ▪ First-Order Systems ▪ Second Order Systems.	1	2
12.	Vibration Under General Forcing Conditions	a1, a2,b1,b2	▪ Response Under a Periodic Force of Irregular Form ▪ Response Under a Nonperiodic Force ▪ Response to an Impulse ▪ Response to a General Forcing Condition ▪ Response to Base Excitation.	1	2
13.	Two-Degree-of-Freedom Systems	a1, a2,b1,b2	▪ Introduction ▪ Equations of Motion for Forced Vibration	1	2

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			▪ Free Vibration Analysis of an Undamped System.		
14.	Two-Degree-of-Freedom Systems	a1, a2,b1,b2	▪ Torsional System ▪ Coordinate Coupling and Principal Coordinates ▪ Forced-Vibration Analysis	1	2
15.	Vibration Control	a1, a2,b1,b2	▪ Vibration Nomograph and Vibration Criteria ▪ Reduction of Vibration at the Source ▪ Balancing of Rotating Machines.	1	2
16.	Final Exam	a1, a2,b1,b2,c1, d1,d2	All Topics	1	2
Number of Weeks /and Units Per Semester				**16**	**32**

B – Tutorial Aspect:

Order	Tasks/ Experiments	Number of Weeks	Contact hours	Learning Outcomes
1.	Fundamentals of Vibration	**1**	**1**	a1, a2,b1,b2,c2, d1, d2
2.	Harmonic Motion	**2**	**2**	a1, a2,b1,b2, c2, d1, d2
3.	Harmonic Analysis	**1**	**1**	a1, a2,b1,b2, c1
4.	Free Vibration of Single-Degree-of-Freedom Systems	**2**	**2**	a1, a2,b1,b2, c2, d1, d2
5.	Harmonically Excited Vibration	**2**	**2**	a1, a2,b1,b2, c2, d1, d2
6.	Vibration Under General Forcing Conditions	**2**	**2**	a1, a2,b1,b2, c2, d1, d2
7.	Two-Degree-of-Freedom Systems	**2**	**2**	a1, a2,b1,b2, c2, d1, d2
8.	Vibration Control	**2**	**2**	a1, a2,b1,b2, c2, d1, d2
Number of Weeks /and Units Per Semester		**14**	**14**	

C – Practical Aspect:

Order	Tasks/ Experiments	Number of Weeks	Contact hours	Learning Outcomes

1.	**Matlab Lab 1:** Harmonic Analysis	**1**	**1**	c1, c2, d1, d2
2.	**Matlab Lab 2:** Free Vibration of Single-Degree-of-Freedom Systems	**2**	**2**	c1, c2, d1, d2
3.	**Matlab Lab 3:** Harmonically Excited Vibration	**2**	**2**	c1, c2, d1, d2
4.	**Matlab Lab 4:** Vibration Under General Forcing Conditions	**2**	**2**	c1, c2, d1, d2
5.	**Matlab Lab 5:** Two-Degree-of-Freedom Systems	**2**	**2**	c1, c2, d1, d2
6.	**Matlab Lab 6:** Vibration Control	**3**	**3**	c1, c2, d1, d2
7.	**Review**	**1**	**1**	
8.	**Final Practical Exam**	**1**	**1**	c1, c2, d1, d2
Number of Weeks /and Units Per Semester		**14**	**14**	

V. Teaching strategies of the course:

- Lectures,
- Tutorials**,**
- Self-Learning Problems
- Seminars
- Computer Laboratory, and
- Projects

VI. Assignments:

No	Assignments	Aligned CILOs(symbols)	Week Due	Mark
1	Exercises and Homework	a1, a2,b1,b2, c2, d1, d2	Weekly	10
2	Projects	a1, a2,b1,b2, c1,c2, d1, d2	14th	15
3	Computer Laboratory Reports	c1, c2, d1, d2	weekly	10
4	Class Attendance & Participation.	a1, a2,b1,b2, c2, d1, d2	Weekly	5
	Total			**40**

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

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment%	Aligned Course Learning Outcomes
1	Assignments	Weekly	40	27%	a1,a2,b1,b2,c1,c2,d1,d2
2	Mid-Term Exam	8th week	20	13%	a1,a2,b1,b2, c2, d1, d2
3	Final Exam (Practical)	15th week	15	10%	c1, c2, d1, d2
4	Final Exam (Theoretical)	16th week	75	50%	a1, a2,b1,b2, c2, d1, d2
Total			**150**	**100**	

VIII. Learning Resources:

- *Written in the following order: (Author - Year of publication – Title – Edition – Place of publication – Publisher).*

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

1. Rao, S.S. 2011, Mechanical Vibrations, 5th Edition, Pearson-Prentice Hall.
2. Grover, G. K., 2009, Mechanical Vibrations, Nem Chand and Bros, Roorkee.

2- Essential References.

1. Ambekar, A. G., 2006, Mechanical Vibrations and Noise Engineering, Prentice Hall of India, New Delhi.
2. Kelly, S. G., 2007, Mechanical Vibrations, Schaum's Outlines, Tata McGraw Hill, New Delhi.

3- Electronic Materials and Web Sites *etc*.

1. Dynamics and Vibrations - Home Page.
2. https://webcache.googleusercontent.com/search?q=cache:9VINJBNdpgEJ:https://cosmolearning.org/courses/mechanical-vibrations-537/+&cd=15&hl=en&ct=clnk

I. Course Policies:

1	**Class Attendance:** - The student should be attending not less than 75% of total contact hours of the subject, otherwise he will not able to take exam and be considerd as an exam failure. If the student is absent due to illness, he/she should bring an approved statement from university Clinic.

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2	**Tardy:** - For lateness in attending the class, the student will be initially notified. If he repeates late in attending class he will be considered absent.
3	**Exam Attendance/Punctuality:** - The student should attend the exam on time. He is permitted to attend the exam half one hour from exam beginning, after that he/she will not be permitted to take exam and he/she is considered absent in the exam.
4	**Assignments & Projects:** - In general one assignment is given after each chapter of a course. The student should submit the assignment on time, mostly one week after giving the assignment
5	**Cheating**: - For cheating in exam, the student is considered as failure. In case the cheating is repeated three times during study the student will be disengaged from the Faculty
6	**Plagiarism**: Plagiarism is the attending of the student the exam of a course instead of other student. If the examination committee proved a plagiarism of a student, he will be disengaged from the Faculty. The final disengagement of the student from the Faculty should be confirmed from the Student Affair Council of the university.
7	**Other policies:** - The mobile phone is not allowable to be used during class lecture. It must be switched off, otherwise the student will be ordered to leave the lecture room. - The mobile phone is not allowed to be taken during the examination time. - Lecture notes and assignments may be given directly to students using soft or hard copy.

Reviewed By	Vice Dean for Academic Affairs and Post Graduate Studies: Asst. Prof. Dr. Tarek A. Barakat President of Quality Assurance Unit: Assoc. Prof. Dr. Mohammed Algorafi Name of Reviewer from the Department: Assoc.Prof. Dr. Khalil Al-Hatab
	Deputy Rector for Academic Affairs Asst. Prof. Dr. Ibrahim AlMutaa Assoc. Prof. Dr. Ahmed Mujahed Asst. Prof. Dr. Munasar Alsubri

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38. Course Plan of Mechanical Vibrations

I. Information about Faculty Member Responsible for the Course:

		Office Hours					
Name of Faculty Member	Asst. Prof. Dr. Abdullah Dhaiban						
Location& Telephone No.	774581887	**SAT**	**SUN**	**MON**	**TUE**	**WED**	**THU**
E-mail	a,dhaiban@eng-sa.edu.ye adaiban2@gmail.com						

II. Course Identification and General Information:

1.	Course Title:	Mechanical Vibrations				
2.	Course Number & Code:	ME222				
3.	Credit hours:	C.H				TOTAL CR. HRS.
		Th.	Seminar/Tu	Pr	Tr.	
		2	-	1	1	3
4.	Study level/year at which this course is offered:	Third Year- Second Semester.				
5.	Pre –requisite (if any):	Mechanics of Machines.				
6.	Co –requisite (if any):	None.				
7.	Program (s) in which the course is offered	Mechanical Engineering Program.				
8.	Language of teaching the course:	English Language.				
9.	System of Study:	Semesters.				
10.	Mode of delivery:	Lectures, Tutorials and Lab.				
11.	Location of teaching the course:	Mechanical Engineering Department.				

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III. Course Description:

The aims of this course are to provide students with the basic knowledge and skills of analysis and/or use of computer software of various mechanical systems , such as Matlab, and formulation of mathematical models of problems in vibrations. This course will also provide students with the ability to select and design the appropriate isolation, absorption, and control system of vibration for the application of various mechanical systems.

IV. Intended learning outcomes (ILOs) of the course:

- Brief summary of the knowledge or skill the course is intended to**:**

1. Recognize fundamental principles of mathematics, science and engineering necessary to solve vibration problems relevant to mechanical engineering fields.
2. Explain concepts and principles of mechanical vibrations and characteristics of free and force damped and undamped vibration systems.
3. Create equations of motions and develop models for a free and force damped and undamped vibration systems, find engineering solutions and realize physical systems in innovative ways.
4. Solve problems of one- and multi-DOF systems, free and force (harmonic) vibration, viscous and hysteric damping under general forcing condition.
5. Use analytical and/or computational methods, such as Matlab, to determine response of single-degree-of-freedom or two-degree of freedom vibration systems.
6. Apply vibration principles and analytical tools in the design of various engineering systems and devices.
7. Inspect the mechanical vibration systems used in daily life.
8. Show communication skills both orally and in writing technical reports.

V. Course Content:

- Distribution of Semester Weekly Plan Of course Topics/Items and Activities.

A – Theoretical Aspect:

Order	Topics List	Sub Topics List	Week Due	Contact Hours

1.	Fundamentals of Vibration	▪ Basic Concepts of Vibrations ▪ Classification of Vibrations ▪ Vibration Analysis Procedure ▪ Spring Elements, Mass Elements, Damping Elements.	1st week	2
2.	Harmonic Motion	▪ Vectorial Representation of Harmonic Motion ▪ Complex-Number Representation of Harmonic Motion, ▪ Complex Algebra, ▪ Operations on Harmonic Functions, ▪ Definitions and Terminology.	2nd week	2
3.	Harmonic Analysis	▪ Fourier Series Expansion, ▪ Complex Fourier Series ▪ Frequency Spectrum, ▪ Time- and Frequency- Domain Representations, ▪ Examples Using MATLAB.	3rd week	2
4.	Free Vibration of Single-Degree-of-Freedom Systems	▪ Free Vibration of an Undamped Translational System, ▪ Equation of Motion Using Newton S Second Law of Motion, ▪ Equation of Motion Using Other Methods, ▪ Equation of Motion of a Spring-Mass System in Vertical Position, Solution, ▪ Harmonic Motion.	4th week	2
5.	Free Vibration of Single-Degree-of-Freedom Systems	▪ Free Vibration of an Undamped Torsional System, ▪ Response of First Order Systems and Time Constant, ▪ Rayleigh's Energy Method.	5th week	2
6.	Free Vibration of Single-Degree-of-Freedom Systems	▪ Free Vibration with Viscous Damping: Equation of Motion ▪ Logarithmic Decrement ▪ Energy Dissipated in Viscous Damping	6th week	2

		▪ Torsional Systems with Viscous Damping.		
7.	Harmonically Excited Vibration	▪ Equation of Motion ▪ Response Of Un-Damped System Under Harmonic Force.	7th week	2
8.	Mid Term Exam	All Previous Topics	8th week	2
9.	Harmonically Excited Vibration	▪ Response of Damped System Under Harmonic Force ▪ Response of Damped System Under $F(t) = Fe^{i\omega t}$	9th week	2
10.	Harmonically Excited Vibration	▪ Response of a Damped System Under the Harmonic Motion of the Base, ▪ Response of a Damped System Under Rotating Unbalance.	10th week	2
11.	Vibration Under General Forcing Conditions	▪ Response Under a General Periodic Force ▪ First-Order Systems ▪ Second Order Systems.	11th week	2
12.	Vibration Under General Forcing Conditions	▪ Response Under a Periodic Force of Irregular Form ▪ Response Under a Nonperiodic Force ▪ Response to an Impulse ▪ Response to a General Forcing Condition ▪ Response to Base Excitation.	12th week	2
13.	Two-Degree-of-Freedom Systems	▪ Introduction ▪ Equations of Motion for Forced Vibration ▪ Free Vibration Analysis of an Undamped System.	13th week	2
14.	Two-Degree-of-Freedom Systems	▪ Torsional System ▪ Coordinate Coupling and Principal Coordinates ▪ Forced-Vibration Analysis	14th week	2
15.	Vibration Control	▪ Vibration Nomograph and Vibration Criteria ▪ Reduction of Vibration at the Source	15th week	2

		▪ Balancing of Rotating Machines.		
16.	Final Exam	All Topics	16th week	2
Number of Weeks /and Units Per Semester			**16**	**32**

B – Tutorial Aspect:			
Order	**Topics List**	**Week Due**	**Contact Hours**
1.	Fundamentals of Vibration	**1st week**	**1**
2.	Harmonic Motion	**2nd - 3rd weeks**	**2**
3.	Harmonic Analysis	**4th** week	1
4.	Free Vibration of Single-Degree-of-Freedom Systems	**5th- 6th weeks**	**2**
5.	Harmonically Excited Vibration	**7th- 8th weeks**	**2**
6.	Vibration Under General Forcing Conditions	**9th- 10th weeks**	**2**
7.	Two-Degree-of-Freedom Systems	**11th- 12th weeks**	**2**
8.	Vibration Control	**13th – 14th week**	**2**
Number of Weeks /and Units Per Semester		**14**	**14**

C – Practical Aspect:			
Order	**Tasks/ Experiments**	**Week Due**	**Contact hours**
1.	**Matlab Lab 1:** Harmonic Analysis	**2nd week**	**1**
2.	**Matlab Lab 2:** Free Vibration of Single-Degree-of-Freedom Systems	**3th-4th weeks**	**2**
3.	**Matlab Lab 3:** Harmonically Excited Vibration	**5th-6th weeks**	**2**
4.	**Matlab Lab 4:** Vibration Under General Forcing Conditions	**7th-8th weeks**	**2**
5.	**Matlab Lab 5:** Two-Degree-of-Freedom Systems	**9th-10th weeks**	**2**
6.	**Matlab Lab 6:** Vibration Control	**11th-13th weeks**	**3**
7.	**Review**	**14th week**	
8.	**Final Practical Exam**	**15th week**	**1**
Number of Weeks /and Units Per Semester		**14**	**14**

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VI. Teaching strategies of the course:

- Lectures,
- Tutorials**,**
- Self-Learning Assignments
- Seminars
- Computer Laboratory, and
- Projects

VII. Assignments:

No	Assignments	Aligned CILOs(symbols)	Week Due	Mark
1	Exercises and Homework	a1, a2,b1,b2, c2, d1, d2	Weekly	10
2	Projects	a1, a2,b1,b2, c1,c2, d1, d2	14th week	15
3	Laboratory Reports	c1, c2, d1, d2	weekly	10
4	Class Attendance & Participation.	a1, a2,b1,b2, c2, d1, d2	Weekly	5
	Total			**40**

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

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment%
1	Assignments	Weekly	40	27%
2	Mid-Term Exam	8th week	20	13%
3	Final Exam (Practical)	15th week	15	10%
4	Final Exam (Theoretical)	16th week	75	50%
Total			**150**	**100**

IX. Learning Resources:

• *Written in the following order: (Author – Year of publication – Title – Edition – Place of publication – Publisher).*

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

1. Rao, S.S. 2011, Mechanical Vibrations, 5th Edition, Pearson-Prentice Hall.
2. Grover, G. K., 2009, Mechanical Vibrations, Nem Chand and Bros, Roorkee.

2- Essential References.

1. Ambekar, A. G., 2006, Mechanical Vibrations and Noise Engineering, Prentice Hall of
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2. Kelly, S. G., Mechanical Vibrations, Schaum's Outlines, Tata McGraw Hill, New Delhi (2007).

3- Electronic Materials and Web Sites *etc*.

1. Dynamics and Vibrations - Home Page.
2. https://webcache.googleusercontent.com/search?q=cache:9VINJBNdpgEJ:https://cosmolearning.org/courses/mechanical-vibrations-537/+&cd=15&hl=en&ct=clnk

II. Course Policies:

1	**Class Attendance:** - The student should be attending not less than 75% of total contact hours of the subject, otherwise he will not able to take exam and be considerd as an exam failure. If the student is absent due to illness, he/she should bring an approved statement from university Clinic.
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4	**Assignments & Projects:** - In general one assignment is given after each chapter of a course. The student should submit the assignment on time, mostly one week after giving the assignment
5	**Cheating**: - For cheating in exam, the student is considered as failure. In case the cheating is repeated three times during study the student will be disengaged from the Faculty
6	**Plagiarism**: Plagiarism is the attending of the student the exam of a course instead of other student. If the examination committee proved a plagiarism of a student, he will be disengaged from the Faculty. The final disengagement of the student from the Faculty should be confirmed from the Student Affair Council of the university.

Head of Department Asst. Prof. Dr. Adel Ahmed Al-Shakiri	Quality Assurance Unit Assoc. Prof. Dr. Mohammad Algorafi	Dean of the Faculty Prof. Dr. Mohammed AL-Bukhaiti	Academic Development Center & Quality Assurance Assoc. Prof. Dr. Huda Al-Emad	Rector of Sana'a University Prof. Dr. Al-Qassim Mohammed Abbas

7	**Other policies:** - The mobile phone is not allowable to be used during class lecture. It must be switched off, otherwise the student will be ordered to leave the lecture room. - The mobile phone is not allowed to be taken during the examination time. - Lecture notes and assignments may be given directly to students using soft or hard copy.