

T6. Course Specification (CS) توصيف المقرر

Institution: Najran University	Date : 2018/5/1
College/Department: Science & Arts Faculty - Physics	

A. Course Identification and General Information:

1. Course title and code : Waves , Vibrations & Sound		Code: 212 phys-2	
2. Credit hours : 2hours			
3. Program(s) in which the course is offered. <u>Physics Program</u>			
4. Name of faculty member responsible for the course : Dr/ Hatem AlNazary & Mona Al-ahmary & Fayza Al Hamed			
5. Level/year at which this course is offered : 3 th level			
6. Pre-requisites for this course (if any) : Introduction to Physics (Phys 101 – 3) & Derivative and Integra(Math's 101 -3)			
7. Co-requisites for this course (if any) : Nil (There is no Co-requisites)			
8. Location if not on main campus : Males and females division in New campus			
9. Mode of Instruction (mark all that apply)			
a. Traditional classroom	<input type="checkbox"/>	What percentage	<input type="checkbox"/>
b. Blended (traditional and online)	<input checked="" type="checkbox"/>	What percentage	<input type="checkbox"/> 100%
c. e-learning	<input type="checkbox"/>	What percentage	<input type="checkbox"/>
d. Correspondence (<input type="checkbox"/>	What percentage?	<input type="checkbox"/>
f. Other	<input type="checkbox"/>	What percentage	<input type="checkbox"/>
Comments !:			

B. Objectives الأهداف

1. What is the main purpose for this course

The course aims to study The vibration motion of mechanical systems, one of the most important subjects in physics. All mechanical systems owns Vibrating property, can vibrate freely and in different ways. The vibrating movement is the essentials to understand the wave motion, so this subject is aimed to upgrade the capacity of the student to understand the meaning of movements and vibrated motion of waves, as well as the application of their principles to some mechanical systems, especially on sound waves.

2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)

1. Searching online for scientific theories related to the curriculum.
2. Reports on work experience through the use of the Internet.
3. Scientific content development and modernization of the existing curriculum.
4. The conversion of a decision to the electronic form and put it on a page on the site professor.
5. Put questions to the Bank decision and announced to the students.

C. Course Description (Note: General description in the form used in the Bulletin or handbook should be attached)

Course Description

The course aims to study The vibration motion of mechanical systems, one of the most important subjects in physics. All mechanical systems owns Vibrating property, can vibrate freely and in different ways. The vibrating movement is the essentials to understand the wave motion, so this subject is aimed to upgrade the capacity of the student to understand the meaning of movements and vibrated motion of waves, as well as the application of their principles to some mechanical systems, especially on sound waves.

1. Topics to be Covered		
List of Topics	No. of Weeks	Contact Hours
1 - Periodic motion - simple harmonic motion - described and represented graphically - describe simple harmonic motion circular motion and rotation vector. Free vibration of physical systems (without friction) – the spring - energy vibration motion - longitudinal flexibility and Young's modulus - the vibration of floating bodies - simple pendulum - vibration motion of rigged body (compound pendulum) - shear vibration – air spring.	5	10

2 Add vibration movements in one direction (in addition repeat movements with equal - different - very evenly) Add vibration movements orthogonal (Add a repeat movements equal and has a different repeat) and Lissago figures . The decay of free vibrations - Spring in resistant environment - quality coefficient of vibrating device.	5	10
3 - Forced vibration and resonance - vibration motion under the influence of periodic power - forced - vibration motion in a resistance media - the ability absorbed from an external source. The properties of sound waves: propagation in straight lines - reflection - refraction - diffraction - overlap - Echo - the speed of sound spread in different media - the Doppler effect.	4	8
Number of weeks	14	28

1.Course components (total contact hours and credits per semester):						
	Lecture	Tutorial	Laboratory or studio	Practical	Other:	Total
Contact Hours	28					28
Credit	2					2

3-Additional private study/learning hours expected for students per week	2hr/week =28 /semester
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4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy.

Code # مستل	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods أ
1.0	Knowledge المعرفة		
1.1	Mention all the terms contained in the vibration movement and free vibration of the physical systems, the decay of free vibrations, wave movement and properties and Doppler phenomenon.	Brainstorming Dialogue and discussion Competitive learning	-2 midterm exams - final exam
1.2	Explanation of theories and phenomena of mechanical and sensitivity pronunciation in typical, one-way, two-	Brainstorming Dialogue and discussion Competitive learning	-2 midterm exams - final exam

Code # مستسل	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
	way and two-way vibrational movements.		
2.0	Cognitive Skills المهارات الإدراكية		
2.1	Interpret the theories and concepts contained in both vibration movement and free vibration of physical systems, free vibration decay, forced vibration, resonance, and associated vibrators.	Brainstorming Dialogue and discussion Competitive learning	2 midterm exams - final exam
2.2	Deduce the basic laws of both harmonic shakes, free free vibrations, forced vibration and resonance, mathematical equations for some special cases of vibration, and the equivalent of two vibrations.	Brainstorming Dialogue and discussion Competitive learning	2 midterm exams - final exam
2.3	Calculate the spring constant, periodic time, angular frequency, movement energy, position energy, displacement volume, displacement and wave velocity at specific times.	Brainstorming Dialogue and discussion Competitive learning	2 midterm exams - final exam
3.0	Interpersonal Skills & Responsibility		
3.1	Express his opinion and accept the opinions of others	Dialogue and discussion Cooperative learning	Observation card
3.2	Take responsibility and participate effectively as a team member	Cooperative learning	Observation card
4.0	Communication, Information Technology, Numerical		
4.1	Demonstrate effective Communicate with the others.	Dialogue and discussion Cooperative learning	Observation card
4.2	Research by using Information Technology and analyze numerical values to get information behind them	Cooperative learning	Observation card
5.0	Psychomotor		
5.1	Not applicable		

5. Schedule of Assessment Tasks for Students During the Semester			
	Assessment task	Week Due	Proportion of Total Assessment
1	First semester exam	5-6	20%
2	Second semester exam	11-12	20%
3	Observation card (activities of students in the course)	during semester	10%

4	Final exam	16-18	50%
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D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)
 - 1- Three office hours per a week.
 - 2- Faculty member will generally be available after class and during regular office hours for extra help.
 - 3- Communication with faculty member through the forum of the course on the blackboard.

E. Learning Resources

1. List Required Textbooks : قائمة الكتب المقررة المطلوبة **Arabic reference**
أ.د. حمد بن عبد الله الهندي ، د عادل مجذوب حسيب ترجمة - الإهتزازات و الموجات في الفيزياء - جامعة الملك سعود
2. List Essential References Materials (Journals, Reports, etc.)
 - Vibrations and waves, by A.P.Franch.
 - Waves and Oscillations, by N.Subrahmanyam.
 - Sound, by N.Subrahmanyam
 - "Vibrations and waves in physics", I. Main John Wiley 1990.
3. List Electronic Materials Web Sites, Facebook, Twitter, etc.
 - 1 - Forum physicists Arabs
 - 2 - Book Forum Arabs
 - 3 - Dr. Jalali educational site for physics
 - 4- Saudi Society for Physical Sciences
4. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

F. Facilities Required

- Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)
Class room (40 seats) , Electronic laboratory
 2. Computing resources (AV, data show, Smart Board, software, etc.)
 - number of computers connected to the Internet to help the students in self-learning and to search
 3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach

list).

- class room equipped with smart board and tabs for each student

G. Course Evaluation and Improvement Processes:

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching
<ul style="list-style-type: none"> • University online questionnaire evaluation of course by students • Questionnaire evaluate Effectiveness of E-learning
2. Other Strategies for Evaluation of Teaching by the Instructor or by the department.
<ul style="list-style-type: none"> • Course report at the end of semester • Evaluation of Peer teaching observation • Evaluation of Course file
3. Processes for Improvement of Teaching:
<ul style="list-style-type: none"> • Attending workshops to facilitate the exchange of experiences. • Discussing the challenges in the classroom with colleagues and members of the Department Counsel. • Encouraging faculty members to attend conferences on professional development. • Setting goals for achieving excellence in teaching at the beginning of each new semester after reviewing previous semester's teaching strategies and results and after considering students' feedback. • Keeping up to date with refereed articles and books related to the topics of the course.
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution)
<ul style="list-style-type: none"> • Review all papers of the answer from faculty member in the program • Review a set of random answer papers from a peer program committee
5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement :
<ul style="list-style-type: none"> • Studying the questioners and staff member remarks to improve the course. • Updating the course topics. • Compare syllabus and course description to those found in other universities (including those on the those on the Internet) • Try to contact other professors in different universities who are teaching similar courses (including well-known institutions) to exchange views regarding the optimal ways to improve the course.

Name of instructor : **Dr/ Hatem AlNazary & Mona Al-ahmary & Fayza Al Hamed**

Signature التوقيع: _____ Date Report Completed : 1/5/2018

Name of field experience teaching staff _____

Program coordinator _____

Signature: _____ Date received: _1/5/2018_____