

## T6. Course Specification (CS)

Institution	Najran University	Date	8-5-1439 H
College/Department	College of Art and Science / Mathematical Department		

### A. Course Identification and General Information:

1. Course title and code : Dynamics(1), 212 Math-3			
2. Credit hours : 3			
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs) College of Art and Science / Mathematical Department			
4. Name of faculty member responsible for the course : Dr. Mohammed Ali Hafiz			
5. Level/year at which this course is offered : four level/two year			
6. Pre-requisites for this course (if any) : Calculus II			
7. Co-requisites for this course (if any) : 171-Math-3			
8. Location if not on main campus: - <b>College of Arts and Sciences-Najran (Male and Female )</b> - <b>College of Arts and Sciences- Sharurah (Male and Female)</b>			
9. Mode of Instruction (mark all that apply)			
a. Traditional classroom	<input checked="" type="checkbox"/>	What percentage ?	<input type="text" value="50"/>
b. Blended (traditional and online)	<input checked="" type="checkbox"/>	What percentage ?	<input type="text" value="20"/>
c. e-learning	<input checked="" type="checkbox"/>	What percentage ?	<input type="text" value="30"/>
d. Correspondence	<input type="checkbox"/>	What percentage?	<input type="text"/>
f. Other	<input type="checkbox"/>	What percentage?	<input type="text"/>
Comments :			

## B. Objectives

1. What is the main purpose for this course ?

**Upon completion of this course, the student should be able to do the following:**

- Compute the velocity and acceleration in one dimension and two dimension
- Find the relations between the distance , velocity and acceleration in one dimension .
- Studying . the relations between the relative velocity and relative acceleration.
- Studying the one dimensional Simple harmonic motion , Projectiles motion and The Orbital motion.
- Compute the Moment of Inertia
- Studying the Kinematics of rigid body in two dimensions.

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)

- Review the plan at the Council of the department of each academic year for the purpose of development and improvement.
- Study the learning difficulties faced by students while studying the course.
- Review the results of the students and analyzed qualitatively out the most important recommendations about the course.
- Encourage students to use the Internet and the site of the Professor of the course.
- Using e-learning system such as Blackboard, e-examination system, Question Mark , Elluminate, and tegrity.
- Compare syllabus are presented with other sections of local, regional and global.
- Update learning resources for course regularly using the Internet.

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

**Course Description :**

This course will cover the foundations of the Particle motion in One, two and three Dimension in Cartesians and polar Coordinate, Simple harmonic motion, Projectiles motion, Pulleys and the Orbital motion

List of Topics	No. of Weeks	Contact Hours
Particle motion in One Dimension	1	3
Relative motion between two bodies in two dimension	1	3
The movement of the particle in plane	2	6
Newton's laws of motion, work and energy	2	6
Simple harmonic motion	2	6
Projectiles motion	2	6
The Orbital motion	2	6
Moment of inertia	2	6
Pulleys	1	3

1.Course components (total contact hours and credits per semester):						
	Lecture	Tutorial	Laboratory or studio	Practical	Other:	Total
Contact Hours	45					45
Credit	3					3

3-Additional private study/learning hours expected for students per week	2
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4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy..
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On the table below are the five NQF Learning Domains, numbered in the left column. .

**First**, insert the suitable and measurable course learning outcomes required in the appropriate learning domains (see suggestions below the table)

**Second**, insert supporting teaching strategies that fit and align with the assessment methods and intended learning outcomes.

**Third**, insert appropriate assessment methods that accurately measure and evaluate the learning outcome. Each course learning outcomes, assessment method, and teaching strategy ought to reasonably fit and flow together as an integrated learning and teaching process. (Courses are not required to include learning outcomes from each domain).

Code #	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	<b>Knowledge</b>		
1.1	Give the basic concepts about the relation all dynamics variables motion .	Method of discussion	Exams, Homework, and Quizzes.
1.2	How to choose the appropriate way studying simple harmonic motion	Problem Solving Methods	Collaborative learning and Team work
1.3	Determine the various ways to study the projectiles motion and the Orbital motion	Class Motivations and Discussions	Homework Assignments
1.4			
2.0	<b>Cognitive Skills</b> By the end of the semester, the students will be able to		
2.1	Distinguish between motion of a	Discussions	

Code #	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
	particle in one dimensional motion and a motion of particle in two dimensions	through the Lecture.	Quizzes
2.2			
3.0	Interpersonal Skills & Responsibility		
3.1	Work as part of a team and Independently	Group problems solving during tutorial	- Observation. - Discussion of each student within his group then discussed together. - Configure teams work to accomplish the duties required - to participate in scientific seminars.
3.2	Apply Theorems to problems in the context of Dynamics.	Cooperative Learning Method	Oral Presentation
4.0	Communication, Information Technology, Numerical		
4.1	Use the Internet in the development of the perceptions of the students related to the course.	<ul style="list-style-type: none"> <li>• Method of practical exercises.</li> <li>• The way the survey.</li> <li>• Using the Web Quest.</li> </ul>	<ul style="list-style-type: none"> <li>• Direct observation.</li> <li>• A short written test. Duties.</li> </ul>
4.2			
5.0	Psychomotor		
5.1	Not applicable	Not applicable	Not applicable
5.2			

5. Schedule of Assessment Tasks for Students During the Semester			
	Assessment task (e.g. essay, test, Quizzes, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	First Exam	6	25%
2	Second Exam	12	25%
3	Final Exam	16	50%

#### 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)

- Action of faculty members for advice and guidance of a student's academic.
- Office hours 4hr/ week.
- Follow-up of the academic advisor.

#### E. Learning Resources

1. List Required Textbooks :

- Dynamics. By: Dr. Aboellnoor Abdallah & Dr. Ismael Hasan.

2. List Essential References Materials (Journals, Reports, etc.)

- Mechanical Science for Technicians: Volume 1 Paperback – 1 Jan 1984 by Ian McDonagh
- Ferdinand P. Beer & E. Russell Johnston Jr. Vector Mechanics for Engineers ( Dynamics ) McGraw-Hill Book Company Inc. 1977
- الميكانيكا العامة، الجزء الثاني ديناميكا الجزيء د. فؤاد زين العرب، دار الراتب الجامعية - لبنان (1991)

3. List Electronic Materials Web Sites, Facebook, Twitter, etc.

<http://www.arab-math.com>

4. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

Maple 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.)

Classrooms + whiteboard + 30 seats

1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)

Datashow

2. Computing resources (AV, data show, Smart Board, software, etc.)

Maple software

### G. Course Evaluation and Improvement Processes:

<p>1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching</p> <ul style="list-style-type: none"> <li>• Distribute questionnaires to students at the end of the semester to get a special assessment for the course.</li> <li>• Interview a sample of students enrolled in the course to take their views.</li> </ul>
<p>2. Other Strategies for Evaluation of Teaching by the Instructor or by the department.</p> <ul style="list-style-type: none"> <li>• Presentation of the results of a sample of students on an external reviewer.</li> <li>• Qualitative analysis of the results of the students.</li> </ul>
<p>3. Processes for Improvement of Teaching:</p> <ul style="list-style-type: none"> <li>• Training programs and workshops for faculty members on the most important teaching methods based around the learner.</li> <li>• Self-assessment by Professor article.</li> <li>• Follow the new teaching strategies.</li> </ul>
<p>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)</p> <ul style="list-style-type: none"> <li>• Check and correct sample of student work by faculty members are independent.</li> <li>• Exchange periodically to correct or sample tests with a faculty member of the same specialty.</li> </ul>

5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement :

- Comparison with similar courses in the corresponding faculties of other universities.
- Update the sources of learning of the course to make sure to keep abreast of developments in the field.
- Statistical results to assess the students' course and to benefit from its results in the improvement and development of the course.
- Reviewing the course contents periodically
- Updating the text book and references



**Name of instructor :Assoc. Prof. Mohammed Ali Hafiz**

**Signature :M.A.Hafiz     Date Report Completed: 8-5-1439 H**

**Name of field experience teaching staff:**

**Program coordinator : Assistance Prof. Dr. Hamood Al-haddad**

**Signature: \_\_\_\_\_ Date received: 13/5/1439**