T-104
2022

Course Specification

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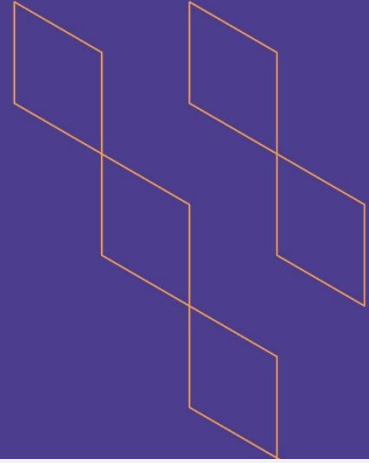
Course Title:	**Dynamics**
Course Code:	**352Math-3**
Program:	**B.Sc. of Mathematics**
Department:	**Mathematics**
College:	**Arts and Sciences**
Institution:	**Najran University**
Version:	**1**
Last Revision Date:	**07-05-2023**

Table of Contents:

A. General information about the course:

Course Identification					
1. Credit hours:	**3**				
2. Course type					
a.	University ☐	College ☐	Department ☒	Track☐	Others☐
b.	Required ☒	Elective☐			
3. Level/year at which this course is offered:	5/3				

4. Course general Description

This course will cover the foundations of the particle motion in one, and two dimensions in the Cartesians and polar coordinate, Simple harmonic motion, Projectiles motion, Pulleys and the Orbital motion and Moment of inertia.

5. Pre-requirements for this course (if any):
Integration Calculus (112Math-3)

6. Co- requirements for this course (if any):

7. Course Main Objective(s)

The main objective of this course is the study of parameters of motion of particle in one dimension and two dimension.

1. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1.	Traditional classroom	3	100
2.	E-learning		
3.	Hybrid • Traditional classroom • E-learning		
4.	Distance learning		

2. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	Lectures	45
2.	Laboratory/Studio	
3.	Field	
4.	Tutorial	-
5.	Others (specify)	
	Total	45

B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
1.0	Knowledge and understanding			
1.1	Define the basis terminology of dynamics.	K1	• Lecture • Cooperative learning • Problem solving	• Assignments • Quizzes • Midterm • Final Exam
1.2	State famous elementary results of dynamic			
2.0	Skills			
2.1	Give different examples of motion types	S1	• Lecture • Cooperative learning • Problem solving	• Assignments • Quizzes • Midterm • Final Exam
2.2	Find the domain, the Solve various problems in dynamics			
2.3	Derive different equations of particle motion.	S2		
3.0	Values, autonomy, and responsibility			
3.1				

C. Course Content

No	List of Topics	Contact Hours
1	Particle motion in one dimension..	6
2	The movement of the particle in plane and space.	6
3	Newton's laws of motion, work and energy.	6
4	Simple harmonic motion.	6
5	Projectiles motion.	6
6	The orbital motion.	6
7	Moment of inertia.	6
8	Pulleys	3
Total		45

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	First Exam	7	20%
2.	Assignments & Quizzes	During classes	10%
3.	Second Exam	13	20%
4.	Final Exam	16	50%

*Assessment Activities (i.e., Written test, oral test, oral presentation, group project, essay, etc.)

E. Learning Resources and Facilities

1. References and Learning Resources

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

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	- Classroom with 30 seats.
Technology equipment (projector, smart board, software)	- Blackboard Platform - Mathematica Program - Projector
Other equipment (depending on the nature of the specialty)	N/A

F. Assessmen

t of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Student	Student Questionnaire (Indirect)
Effectiveness of students assessment	Peer Reviewer	Rubrics (Indirect)
Quality of learning resources		
The extent to which CLOs have been achieved	Faculty	Direct
Other		

Assessor (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)

Assessment Methods (Direct, Indirect)

G. Specification Approval Data

COUNCIL /COMMITTEE	Council of Mathematics Department
REFERENCE NO.	14441017-0208-00014
DATE	17-10-1444H