

Course Description – Mechanics(Dynamics)

1. Course Name:					
Mechanics(Dynamics)					
2. Course Code:					
DYME247					
3. Semester / Year:					
Second semester/ second class / 2023-2024					
4. Description Preparation Date:					
7/4/2024					
5. Available Attendance Forms:					
Presence					
6. Number of Credit Hours (Total) / Number of Units (Total)					
Theory (2 hours)- practice (3 hours) (5 hours)/ 3.5 units					
7. Course administrator's name (mention all, if more than one name)					
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8. Course Objectives					
The student's familiarity with the different states of motion of bodies and their various applications in order to gain a broad understanding of the movement of agricultural equipment and machinery					
9. Teaching and Learning Strategies					
<ul style="list-style-type: none"> - Interactive lecture - Brainstorming - Dialogue and discussion - Practical exercises - Self-education 					
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2 Theory	a1,a2: Remembers and understands the basics of dynamics	Basic concepts in dynamics	Interactive lecture, brainstorming, dialogue and discussion	Exams, homework
	3 practice	a2, c4,c3 ,a3: Understands and analyzes the problem and forms the special relationships to solve it	Review some basic mathematics concepts related to the topic	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Exams, homework

2	2 Theory	a2: Understands the topic and then solve examples a2, c4,c3 ,a3: Understands and analyzes the examples and forms the special relationships to solve it	General rectilinear motion of bodies	Interactive lecture, brainstorming, dialogue and discussion	Exams, homework
	3 Practice	a2, c4,c3 ,a3: Understands and analyzes the problem and forms the special relationships to solve it	Solve problems related to the topic	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Exams, homework
3	2 Theory	a2: Understands the topic and then solve examples a2, c4,c3 ,a3: Understands and analyzes the examples and forms the special relationships to solve it	rectilinear motion of bodies with constant acceleration	Interactive lecture, brainstorming, dialogue and discussion	Exams, homework
	3 Practice	a2, c4,c3 ,a3: Understands and analyzes the problem and forms the special relationships to solve it	Solve problems related to the topic	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Exams, homework
4	2 Theory	a2: Understands the topic and then solve examples a2, c4,c3 ,a3: Understands and analyzes the examples and forms the special relationships to solve it	General curvilinear motion	Interactive lecture, brainstorming, dialogue and discussion	Exams, homework
	3 Practice	a2, c4,c3 ,a3: Understands and analyzes the problem and forms the special relationships to solve it	Solve problems related to the topic	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Exams, homework
5	2 Theory	a2: Understands the topic and then solve examples a2, c4,c3 ,a3: Understands and analyzes the examples and forms the special relationships to solve it	Analysis of curvilinear motion using Cartesian coordinate	Interactive lecture, brainstorming, dialogue and discussion	Exams, homework
	3 Practice	a2, c4,c3 ,a3: Understands and analyzes the problem and forms the special relationships to solve it	Solve problems related to the topic	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Exams, homework
6	2 Theory	a2: Understands the topic and then solve examples a2, c4,c3 ,a3: Understands and analyzes the examples and forms the special relationships to solve it	Motion of projectiles	Interactive lecture, brainstorming, dialogue and discussion	Exams, homework
	3 Practice	a2, c4,c3 ,a3: Understands and analyzes the problem and forms the special relationships to solve it	Solve problems related to the topic	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Exams, homework
7	2 Theory	a2: Understands the topic and then solve examples a2, c4,c3 ,a3: Understands and analyzes the examples and forms the special relationships to solve it	Analysis of curvilinear motion using polar, normal and tangential coordinates	Interactive lecture, brainstorming, dialogue and discussion	Exams, homework
	3 Practice	a2, c4,c3 ,a3: Understands and analyzes the problem and forms the special relationships to solve it	Solve problems related to the topic	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Exams, homework
8	2 Theory	a2: Understands the topic and then solve examples a2, c4,c3 ,a3: Understands and analyzes the examples and forms the special relationships to solve it	Rotation of bodies about fixed axis with variable acceleration	Interactive lecture, brainstorming, dialogue and discussion	Exams, homework
	3 Practice	a2, c4,c3 ,a3: Understands and	Solve problems	Interactive lecture,	Exams,

		analyzes the problem and forms the special relationships to solve it	related to the topic	brainstorming, dialogue and discussion, self-learning	homework
9	2 Theory	a2: Understands the topic and then solve examples a2, c4,c3 ,a3: Understands and analyzes the examples and forms the special relationships to solve it	Rotation of bodies about fixed axis with constant acceleration	Interactive lecture, brainstorming, dialogue and discussion	Exams, homework
	3 Practice	a2, c4,c3 ,a3: Understands and analyzes the problem and forms the special relationships to solve it	Solve problems related to the topic	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Exams, homework
10	2 Theory	a2: Understands the topic and then solve examples a2, c4,c3 ,a3: Understands and analyzes the examples and forms the special relationships to solve it	Constrained motion of connected particles	Interactive lecture, brainstorming, dialogue and discussion	Exams, homework
	3 Practice	a2, c4,c3 ,a3: Understands and analyzes the problem and forms the special relationships to solve it	Solve problems related to the topic	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Exams, homework
11	2 Theory	a2: Understands the topic and then solve examples a2, c4,c3 ,a3: Understands and analyzes the examples and forms the special relationships to solve it	Kinetics of a particle: force and acceleration	Interactive lecture, brainstorming, dialogue and discussion	Exams, homework
	3 Practice	a2, c4,c3 ,a3: Understands and analyzes the problem and forms the special relationships to solve it	Solve problems related to the topic	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Exams, homework
12	2 Theory	a2: Understands the topic and then solve examples a2, c4,c3 ,a3: Understands and analyzes the examples and forms the special relationships to solve it	Equation of motion: rectangular coordinates	Interactive lecture, brainstorming, dialogue and discussion	Exams, homework
	3 Practice	a2, c4,c3 ,a3: Understands and analyzes the problem and forms the special relationships to solve it	Solve problems related to the topic	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Exams, homework
13	2 Theory	a2: Understands the topic and then solve examples a2, c4,c3 ,a3: Understands and analyzes the examples and forms the special relationships to solve it	Equation of motion: normal and tangential coordinates	Interactive lecture, brainstorming, dialogue and discussion	Exams, homework
	3 Practice	a2, c4,c3 ,a3: Understands and analyzes the problem and forms the special relationships to solve it	Solve problems related to the topic	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Exams, homework
14	2 Theory	a2: Understands the topic and then solve examples a2, c4,c3 ,a3: Understands and analyzes the examples and forms the special relationships to solve it	Equation of motion: normal and tangential coordinates	Interactive lecture, brainstorming, dialogue and discussion	Exams, homework
	3 Practice	a2, c4,c3 ,a3: Understands and analyzes the problem and forms the special relationships to solve it	Solve problems related to the topic	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Exams, homework
15	2 Theory	a2: Understands the topic and then solve examples a2, c4,c3 ,a3: Understands and analyzes the examples and forms	Work and energy	Interactive lecture, brainstorming, dialogue and discussion	Exams, homework

		the special relationships to solve it			
	3 Practice	a2, c4,c3 ,a3: Understands and analyzes the problem and forms the special relationships to solve it	Solve problems related to the topic	Interactive lecture, brainstorming, dialogue and discussion, self-learning	Exams, homework

11. Course Evaluation

Theory	practice	Final Exam	Total
25% -Exams -Presence	15% - Exams - Homework	60%	100%

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	مبادئ ميكانيك ، سعد الدين محمد امين ، الطبعة الاولى ، دار الكتب للطباعة والنشر-الموصل ، 1991
Main references (sources)	- Engineering Mechanics-Dynamics, R.C.Hibbeler, 12 ed., Pearson Prentice Hall, 2010. - Vector Mechanics for Engineers, by Beer,Johnstton, Mazurek, and Cornwell, 10 th ed, McGraw-Hill, 2013.
Recommended books and references (scientific journals, reports...)	-----
Electronic References, Websites	-----