



UNIVERSITI TEKNOLOGI MARA

AKARI123: Copy Of MAE472 (123247) Fundamental of Mechanics. (Approved)

Course Name (English)	Copy Of MAE472 (123247) Fundamental of Mechanics. (Approved) APPROVED
Course Code	AKARI123
MQF Credit	2
Course Description	The course introduces the basic principles of statics and dynamics. Mechanics of statics deals with equilibrium of bodies, i.e. bodies at rest and bodies moving with a constant velocity. It includes resultant and resolution of forces, equilibrium of a particle, force system resultant, equilibrium of rigid bodies, and moment of inertia. Mechanics of Dynamics deals with the accelerated motion of bodies. It includes kinematics and kinetics of a particle and of a rigid body. Kinematics discusses the relationship between displacement, velocity and acceleration against time. Kinetics covers the concepts of force and acceleration (Newton's laws of motion), energy and work, power, impulse and momentum, and projectiles.
Transferable Skills	Team Work, Analytical Skills,
Teaching Methodologies	Lectures, Tutorial, Discussion
CLO	CLO1 Apply the concepts and theories learned in solving mechanics problems. CLO2 Demonstrate communication skill in writing mathematical solutions of mechanics clearly and coherently. CLO3 Find solutions to the problems in static and dynamic mechanic
Pre-Requisite Courses	No course recommendations
Topics	
1. Vector component and resultant 1.1) vector representation, resultant vector: two and more than two concurrent vectors.	
2. Forces and equilibrium 2.1) Vector nature of forces, resultant force, moment and torque, resultant of moment and torque, equilibrium of concurrent coplanar forces, triangular law. Lami's theorem, contact forces.	
3. Kinematics of motion in straight line 3.1) Motion in a straight line, Equation of motion for a moving particles, Vertical motion under the gravity, displacement-time graphs, velocity-time graph, differentiation and integration with respect to time.	
4. Motion of a projectile 4.1) Model of motion of a projectile, horizontal and vertical equation of path, Properties of parabolic flight	
5. Newton law of motion 5.1) Newton's first, second and third law, Force mass and acceleration	
6. Energy, work and power 6.1) Work done against gravity, gravitational potential energy, kinetic energy, relationship between energy and the work done, the power of moving particle	

Assessment Breakdown	%
Continuous Assessment	50.00%
Final Assessment	50.00%

Details of Continuous Assessment	Assessment Type	Assessment Description	% of Total Mark	CLO
	Assignment	GROUP ASSIGNMENT	20%	CLO2
	Test	TEST 1	15%	CLO1
	Test	TEST 2	15%	CLO3

Reading List	This Course does not have any book resources
Article/Paper List	This Course does not have any article/paper resources
Other References	This Course does not have any other resources