Course Description Form	
Course Code and Name	MM202 Dynamics
Course Semester	4
Catalog Content	Introduction. Stress and Strain. Axial Load. Torsion. Bending. Transverse Loading. Combined Loading. Stress Transformation.
Textbook	Engineering Mechanics:Dynamics, R.C.Hibbeler, Pearson, Prentice Hall.
Supplementary Textbooks	Engineering Mechanics:Dynamics, J.L.Meriam&L.E.Kraige, John Wiley.
Credit	5
Prerequisites of the Course (Attendance Requirements)	FIZ103 Physics I, 70% Attendance
Type of the Course	Compulsory
Instruction Language	Turkish
Course Objectives	Kinematics; Velocity, acceleration, displacement and time. Kinetics; Newton's equation of motion, work-energy principle, Conservation of energy and momentum.
Course Learning Outcomes	1. Gaining the ability to apply the kinematics to the engineering problems for the particle and the rigid body. 2. Gaining the ability to apply the equation of motion to the particle and the rigid body. 3. Gaining the ability to apply the work-energy principles to the engineering problems for the particle and the rigid body. 4. Gaining the ability to apply the impuls-momentum principles to the engineering problems for the particle and the rigid body.
Instruction Methods	The mode of delivery of this course is "Face to face"
Weekly Schedule	1. Kinematics of a Particle (Rectilinear Kinematics, Curvilinear Motion, Absolute Dependent Motion Analysis of Two Particles) 2. Kinematics of a Particle (Rectilinear Kinematics, Curvilinear Motion, Absolute Dependent Motion Analysis of Two Particles) 3. Kinetics of a Particle: Force and Acceleration (Newton's second law of motion, Equation of Motion for a System of Particles) 4. Kinetics of a Particle: Force and Acceleration (Newton's second law of motion, Equation of Motion for a System of Particles) 5. Kinetics of a Particle: Work and Energy (The Work of a Force, Principle of Work and Energy, Conservation of Energy) 6. Kinetics of a Particle: Impulse and Momentum (Principle of Linear Impulse and Momentum, Conservation of Linear Momentum) 7. Kinetics of a Particle: Impulse and Momentum (Impact, Angular Momentum) 8. Midterm 1; Planar Kinematics of a Rigid Body: Translation, Rotation 9. Planar Kinematics of a Rigid Body: Translation, Rotation 10. Planar Kinematics of a Rigid Body: Relative-Motion Analysis: Velocity, Acceleration

	11. Planar Kinetics of a Rigid Body: Force and Acceleration (Equations of motion: Translation, Rotation about a fixed axis, general plane motion) 12. Planar Kinetics of a Rigid Body: Force and Acceleration (Equations of motion: Translation, Rotation about a fixed axis, general plane motion) 13. Midterm 2; Planar Kinetics of a Rigid Body: Force and Acceleration (Equations of motion: Translation, Rotation about a fixed axis, general plane motion) 14. Planar Kinetics of a Rigid Body: Work and Energy (Kinetic Energy, The Work of a Force, The Work of a Couple Moment, Principle of Work and Energy, Conservation of Energy) 15. Final Exam
Teaching and Learning Methods *(These are examples. Please fill which activities you use in the course)*	Weekly theoretical course hours:3 Weekly applied course hours:1 Reading Activities: 3 Internet browsing, library work:1 Preparation of Midterm and Midterm Exam:10 Final Exam and Preparation for Final Exam:10 Other: Preparation of Quizzes: 2

Assessment Criteria

	Numbers	Total Weighting (%)
Midterm Exams	2	50
Assignment		
Application		
Projects		
Practice		
Quiz	6	10
Percent of In-term Studies (%)		60
Percentage of Final Exam to Total Score (%)		40
Attendance		

Workload

Activity	Total Number of Weeks	Duration (weekly hour)	Total Period Work Load
Weekly Theoretical Course Hours	14	3	42
Weekly Tutorial Hours	14	1	14
Reading Tasks	6	3	18
Studies	9	1	9
Material Design and Implementation			
Report Preparing			
Preparing a Presentation			
Presentations			
Midterm Exam and Preperation for Midterm Exam	2	10	20
Final Exam and Preperation for Final Exam	1	10	10
Other (Quiz)	6	2	12
Total Workload			125
Total Workload / 25			5
Course Credit (ECTS)			5

Contribution Level Between Course Learning Outcomes and Program Outcomes

No	Program Outcomes	1	2	3	4	5
1	Adequate knowledge of subjects specific to mathematics, natural sciences and related engineering disciplines; ability to use theoretical and applied knowledge related to these areas in complex engineering problems.				x	
2	Ability to identify, define, formulate, and solve complex engineering problems; ability to select and apply appropriate analysis and modeling methods to this end.				x	
3	Ability to design a complex system, process, device or product under realistic constraints and conditions to meet specific requirements; ability to apply modern design methods for this purpose.	x				
4	Ability to develop, select and use modern techniques and tools required for the analysis and solution of complex problems encountered in engineering practice; ability to use information technologies effectively.					
5	Ability to design and conduct experiments, collect data, analyze and interpret results to investigate complex engineering problems or discipline-specific research topics					
6	Ability to work effectively in disciplinary and multi-disciplinary teams; ability to work individually.					
7	Ability to communicate effectively in Turkish, both orally and in writing; knowledge of at least one foreign language; the ability to write effective reports and understand written reports, to prepare design and production reports, to deliver effective presentations, to give and receive clear and understandable instructions.					
8	Awareness of the necessity of lifelong learning; the ability to access information, to follow developments in science and technology, and to renew oneself constantly.					
9	Acting in accordance with ethical principles, professional and ethical responsibility; information about standards used in engineering applications.					

	10	Information about business life practices such as project management, risk management and change management; awareness of entrepreneurship, innovation; information about sustainable development.					
	11	Knowledge about the universal and social effects of engineering applications on health, environment and safety and the problems of the age reflected in the engineering field; awareness of the legal consequences of engineering solutions.					
The Course's Lecturer(s) and Contact Informations	1. arif.adli@gazi.edu.tr, Prof. Dr. Mehmet Arif ADLI 2. turkbas@gazi.edu.tr, Dr. Öğr. Üyesi Osman Selim TÜRKBAŞ 3. tapatay@gazi.edu.tr, Doç. Dr. Tunç APATAY						