

Course Description Form	
Course Code and Name	MM 422 Mechanical Engineering Laboratory
Course Semester	8
Catalog Content	Conducting experiments on the following subjects: engine performance, drag forces, heat transfer by convection, cooling tower, vortex, statistical methods, surface roughness, elasticity and shear modules, harmonic force, vibration of systems, dynamic response of systems, etc. . Comparison of experimental results and analytical calculations. Report writing.
Textbook	J.P.Holman, Experimental Methods for Engineers, Seventh Edition, Mc-Graw Hill, 2001.
Supplementary Textbooks	80% attendance is mandatory.
Credit	4
Prerequisites of the Course (Attendance Requirements)	8
Type of the Course	Compulsory
Instruction Language	English
Course Objectives	In this course, it is aimed that students apply the measurement and data collection techniques they have learned before by doing experiments related to some of the courses they have taken in their Mechanical Engineering education.
Course Learning Outcomes	<ol style="list-style-type: none"> 1. Able to design any experimental setup related to mechanical engineering. 2. Able to set up and calibrate the experimental equipment. 3. Able to prepare the experimental setup or use a readily available test setup. 4. Able to evaluate the experimental results. 5. Able to prepare and present a technical report containing the results of the experiment.
Instruction Methods	The mode of delivery of this course is in-class.
Weekly Schedule	<ol style="list-style-type: none"> 1. Week Introduction and explanation of how the course will progress 2. Week Forming experiment groups 3. Week Teaching of programs to be used in experiments 4. Week Teaching of programs to be used in experiments 5. Week Experiment 6. Week Experiment 7. Week Experiment 8. Week Experiment 9. Week Experiment 10. Week Experiment 11. Week Experiment 12. Week Experiment 13. Week Experiment (make up) 14. Week Discussion 15. Week Discussion
Teaching and Learning Methods <i>(These are examples. Please fill which activities you use in the course)</i>	Weekly theoretical course hours: 0 Weekly applied course hours: 2 Reading Activities: 3 Internet browsing, library work: 3 Designing and implementing materials:0 Report preparing: 3

	Preparing a Presentation: 0 Presentations: 0 Preparation of Midterm and Midterm Exam: 0 Final Exam and Preparation for Final Exam: 0			
Assessment Criteria		Numbers	Total Weighting (%)	
	Midterm Exams	0	0	
	Assignment	0	0	
	Application	0	0	
	Projects	0	0	
	Practice	8	100	
	Quiz	0	0	
	Percent of In-term Studies (%)	0	0	
	Percentage of Final Exam to Total Score (%)	0	0	
	Attendance	0	0	
Workload	Efficiency	Total Week Count	Weekly Duration (in hour)	Total Workload in Semester
	Theoretical Study Hours of Course Per Week			0
	Practising Hours of Course Per Week	14	2	28
	Reading	8	3	24
	Searching in Internet and Library	8	3	24
	Designing and Applying Materials			0
	Preparing Reports	8	3	24
	Preparing Presentation			0
	Presentation			0
	Mid-Term and Studying for Mid-Term			0
	Final and Studying for Final			0
	Other			
	TOTAL WORKLOAD:			100
	TOTAL WORKLOAD / 25:			4.0
	ECTS:			4

Contribution Level Between Course Learning Outcomes and Program Outcomes	NO	PROGRAM LEARNING 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.					
	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.					
	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					x
	6	Ability to work effectively in disciplinary and multi-disciplinary teams; ability to work individually.			x		
	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.		x			
	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. maakdogan@gazi.edu.tr . Dr. Mehmet Akif Akdoğan					