<table>
<tr><th colspan="2">Course Description Form</th></tr>
<tr><td>Course Code and Name</td><td>ME 306 DYNAMICS OF MACHINERY</td></tr>
<tr><td>Course Semester</td><td>6</td></tr>
<tr><td>Catalog Content</td><td>Static force analysis, Dynamic force analysis, Balancing: Rotating shafts, flywheels, Introduction to mechanical vibrations</td></tr>
<tr><td>Textbook</td><td>Theory of Machines and Mechanisms, J. E Shigley and J. J. Uicker, McGraw-Hill, Second Edition, 1995.</td></tr>
<tr><td>Supplementary Textbooks</td><td>Mechanism Design: Analysis and Synthesis,</td></tr>
<tr><td>Credit</td><td>6</td></tr>
<tr><td>Prerequisites of the Course
(Attendance Requirements)</td><td>MM202-Dynamics</td></tr>
<tr><td>Type of the Course</td><td>Compulsory</td></tr>
<tr><td>Instruction Language</td><td>English</td></tr>
<tr><td>Course Objectives</td><td>Static and dynamic analysis of mechanism</td></tr>
<tr><td>Course Learning Outcomes</td><td>1. Can make static and dynamic analysis of mechanisms.
2. Can understand the principles of balancing of flywheels and shafts.
3. Can understand the fundamentals of mechanical vibrations.</td></tr>
<tr><td>Instruction Methods</td><td>Lecture, Question & Answer, Demonstration, Drill - Practise</td></tr>
<tr><td>Weekly Schedule</td><td>1. Week Introduction: Basic concepts.
2. Week Static force analysis: Graphical and analytical methods
3. Week Static force analysis: Graphical and analytical methods
4. Week Static force analysis: Graphical and analytical methods
5. Week Dynamic force analysis: Graphical and analytical methods.
6. Week Dynamic force analysis: Graphical and analytical methods.
7. Week Dynamic force analysis: Shaking forces and moments
8. Week I. Midterm. Friction models, force analysis with friction.
9. Week Balancing: Rotating shafts, flywheels.
10. Week Balancing: Rotating shafts, flywheels.
11. Week Introduction to mechanical vibrations: Single degree of freedom system.
12. Week Introduction to mechanical vibrations: Free and forced vibrations.
13. Week II. Midterm. Introduction to mechanical vibrations: Vibration isolation
14. Week Introduction to mechanical vibrations: Vibration isolation
15. Week Final Exam</td></tr>
<tr><td>Teaching and Learning Methods

(These are examples. Please fill which activities you use in the course)</td><td>Weekly theoretical course hours: 3
Weekly applied course hours: 0
Reading:3
Internet browsing, library work:2
Preparation of Midterm and Midterm Exam:4
Final Exam and Preparation for Final Exam:6
Others:2</td></tr>
<tr><td>Assessment Criteria</td><td>
<table>
<tr><th></th><th>Numbers</th><th>Total Weighting (%)</th></tr>
<tr><td>Midterm Exams</td><td>2</td><td>60</td></tr>
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Assignment	0	0	
Application	0	0	
Projects	0	0	
Practice	0	0	
Quiz	0	0	
Percent of In-term Studies (%)	-	60	
Percentage of Final Exam to Total Score (%)	-	40	
Attendance	-	0	

Workload

Activity	Total Number of Weeks	Duration (weekly hour)	Total Period Work Load
Weekly Theoretical Course Hours	14	3	42
Weekly Tutorial Hours			0
Reading Tasks	14	3	42
Studies	14	2	28
Material Design and Implementation			0
Report Preparing			0
Preparing a Presentation			0
Presentations			0
Midterm Exam and Preperation for Midterm Exam	6	4	24
Final Exam and Preperation for Final Exam	2	6	12
Other (should be emphasized)	1	2	2
Total Workload			150
Total Workload / 25			6,0
Course Credit (ECTS)			6

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.	X				
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. nakturk@gazi.edu.tr, Prof.Dr.Nizami AKTÜRK; 2. karacay@gazi.edu.tr, Assoc. Dr. Tuncay KARAÇAY