Essential Subjects	0
Media Class Subjects	
Instructor	FEDORYNENKO DMYTRO MITSUHIRO HAYASHIBE
Credit(s)	2
English Subject	(IMAC-U)Mechanical Vibrations I
Subject	(IMAC-U)Mechanical Vibrations I
Year	2024
Subject Numbering	TMA-MEE213E

Language	
Object in Class subject and Object and summary of class and Goal of study(J)	Google Classroomのクラスコードは工学部Webページにて確認すること。 学部シラバス・時間割(<u>https://www.eng.tohoku.ac.jp/edu/syllabus-ug.html</u>) 1. Class subject(目的) To acquire fundamental knowledge regarding dynamic problems which may arise in machinery. 2. Object and summary of class(概要) To learn dynamic characteristics of the systems with one, two, and multi degrees of freedom obtained by modeling machinery. 3. Goal of the study(達成目標等) To acquire the ability to apply the knowledge obtained in this class to engineering design.
Object in Class subject and Object and summary of class and Goal of study	The class code for Google Classroom can be found on the Web site of the School of Engineering: <u>https://www.eng.tohoku.ac.jp/edu/syllabus-ug.html</u> (JP Only) 1. Class subject To acquire fundamental knowledge regarding dynamic problems which may arise in machinery. 2. Object and summary of class To learn dynamic characteristics of the systems with one, two, and multi degrees of freedom obtained by modeling machinery. 3. Goal of the study To acquire the ability to apply the knowledge obtained in this class to engineering design.
Other subject is relevant and complete a point to notice(J) Other subject is relevant and complete a point to notice Contents and progress schedule of class(J)	Fundamental knowledge of Mathematics and Mechanics is required.
Contents and progress schedule of class	 Introduction, vibration basics, and fundamental mathematics Free vibrations of systems with one degree of freedom: vibration of an undamped system (I) Free vibrations of systems with one degree of freedom: vibration of an undamped system (II) Free vibrations of systems with one degree of freedom: vibration of an undamped system (III) Free vibrations of systems with one degree of freedom: vibrations of an undamped system (III) Free vibrations of systems with one degree of freedom: vibrations with viscous damping Free vibrations of systems with one degree of freedom: vibrations with viscous, Coulomb, and hysteretic damping Forced vibrations of systems with one degree of freedom (II) Forced vibrations of systems with we degree of freedom (II) Free vibrations of systems with we degree of freedom (II) Free vibrations of systems with two degrees of freedom (II) Free vibrations of systems with two degrees of freedom (II) Free vibrations of systems with two degrees of freedom (II) Free vibrations of systems with two degrees of freedom (II) Free vibrations of systems with two degrees of freedom (II) Vibrations of multidegree-of-freedom systems (I) Vibrations of multidegree-of-freedom systems (II) Summary Final examination

self study(J)	生徒は各クラスを1~2時間勉強する必要があります。 理解できない部分が残っている場合は、質問すたほうがいいです。									
self study	Students are required to review each class for one to two hours. If there remain any parts they cannot understand, they should ask questions.									
Record and evaluation method(J)										
Record and evaluation method	Students are evaluated on the in-class assignments they perform and the final exam. The in-class assignments are given to students at the end of each lecture. The coverage of the assignments corresponds to the contents of the previous class. Students must solve the given problems within 15 minutes and then hand them in at the end of the lecture. Grading policy: solving in-class mini-tests - 30%; final examination - 70%.									
	No	Title	Author	Publisher	Year	ISBN/ISSN	Classification			
Textbook	1.	『Mechanical Vibrations SI (5th Edition)』	S. S. Rao	Pearson Education	2011	<u>9789810687120</u>	reference			
I EXTDOOK and references	2.	[Mechanical Vibrations]	S. G. Kelly	Schaum' s Outline Series	1996	<u>0070340412</u>	reference			
	3.	『An Introduction to Mechanical Vibrations, (3rd Edition)』	R. F. Steidel, Jr.	Wiley	1989	<u>0471845450</u>	reference			
URL	Google Classroom is planned to be used as a course LMS. Google Classroom: [TB14025] (IMAC-U) Mechanical Vibrations I 2024; class code is ty2hucl									
Attached file										
Office hours(J)										
Office hours	rs Usually, office hours are arranged individually upon request. Please get in touch with the course instructor by email.									
Notes	The course is organized without a specific textbook. Instead, handouts and presentations for each lecture are supposed to be used. Some reference books can be borrowed from the IMAC library (Room 330, Mechanics Building 2 (A03), Aobayama Campus).									
Practical business										
In addition										

One-credit courses require 45 hours of study. In lecture and exercise-based classes, one credit consists of 15-30 hours of class time and 30-15 hours of preparation and review outside od class. In laboratory, practical skill classes, one credit consists of 30-45 hours of class time and 15-0 hours of preparation and review outside of class.