

Course Name	Vibrations in Engineering		
Semester, Year	Second Semester, 2018 (Winter Term)	Number of Credits	2 credits
Course level	2000	Course Number	27098
Instructor(s) (Institution)	Yukinori KOBAYASHI (大学院工学研究院)		
Course Objectives	This course offers fundamentals on engineering mechanics and analytical approaches for vibration problems. Equations of motion of 1 DOF and 2 DOF systems are explained and vibration characteristics can be learned from many examples. Vibration analysis of simple continuous system like string is also explained.		
Course Goals	Understandings on fundamental analysis of free and forced vibration problems of 1 DOF and 2 DOF systems.		
Course Schedule	<ol style="list-style-type: none"> 1. Guidance and introduction on vibration 2. Free vibration of single degree of freedom system (2 times) 3. Energy method 4. Free vibration of viscous damping system (2 times) 5. Forced vibration of viscous damping system (2 times) 6. Rotor system and equivalent damping 7. Column damping 8. Fourier series and Fourier transform 9. Free vibration of multi degree of freedom system (2 times) 10. Forced vibration of multi degree of freedom system (2 times) 11. Vibration of string 		
Homework	One hour review about the topic of each lecture is recommended.		
Grading System	<p>Several assignments are required to submit. Students who attend more than 60 % can take the final examination.</p> <p>20% assignments 80% final examination</p>		
Textbooks / Reading List	<p>Handouts are delivered for your understanding. Please contact the instructors if you need further advice.</p> <p>機械振動学通論第3版 入江敏博, 小林幸徳 朝倉書店 2006 Mechanical Vibrations (5th Edition) Singiresu S. Rao Pearson</p>		
Websites			
Website of Laboratory	http://mech-hm.eng.hokudai.ac.jp/~rd/labo/index_en.html		
Additional Information			