

科目ナンバリング		U-LAS12 10015 LE57									
授業科目名 <英訳>		Advanced Dynamics Advanced Dynamics				担当者所属 職名・氏名		工学研究科 准教授 KIM , SUNMIN			
群	自然科学科目群			分野(分類)		物理学(基礎)			使用言語		英語
旧群	B群	単位数	2単位	週コマ数		1コマ	授業形態	講義 (対面授業科目)			
開講年度・ 開講期	2025・後期		曜時限	火3			配当学年	主として1回生	対象学生	理系向	
[授業の概要・目的]											
This course deals with the mechanics of rigid body based on Newton's mechanics. Description of motion of rigid bodies and related applications will be explained in detail.											
[到達目標]											
To understand various dynamic topics comprehensively based on many practical examples and problems											
[授業計画と内容]											
The main topics in this lecture are as follows; (Each items will be covered by 2-3 weeks)											
1. Curvilinear motion of a particle [1 week] - Rectangular components, normal and tangential components, cylindrical components											
2. Planer motion of a rigid body [2 weeks] - Translation, rotation about a fixed axis, relative motion analysis using rotating axes											
3. General motion of a rigid body [2 weeks] - The time derivative of a vector in a rotating reference frame											
4. Force and energy of a rigid body [3 weeks] - Mass moment of inertia, equations of motion, principle of work and energy, conservation of energy											
5. Impulse and momentum of a rigid body [3 weeks] - Linear and angular momentum, impact, principle of impulse and momentum, conservation of momentum											
6. Three dimensional motion analysis [3 weeks] - Moments and products of inertia, equations of motion, gyroscopic motion											
7. Final Examination											
8. Feedback [1 week]											
[履修要件]											
Having taken the course"Fundamental Physics A" is recommended.											
[成績評価の方法・観点]											
Evaluation is based on assignments (40%) and written tests (final exam: 60%).											
[教科書]											
使用しない Some handout materials will be provided during the class.											
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Advanced Dynamics(2)

[参考書等]

(参考書)

R. C. Hibbeler 『Dynamics』 (Prentice Hall) ISBN:978-0-13-291127-6 (very well organized textbook with abundant examples)

[授業外学修 (予習・復習) 等]

Self-review is strongly recommended after each lecture.

[その他 (オフィスアワー等)]

No specific office hour. Email communication is preferred through [kim.sunmin.6x@kyoto-u.ac.jp].

[主要授業科目 (学部・学科名)]

理学部