科目ナンバリング	U-LAS12 10026 LE57						
授業科目名<英訳>	Physics for All-E2 Physics for All-E2			担当者所属職名・氏名	工学研究科　講師　Tam Willy Nguyen		
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	2026・後期	曜時限	木2	配当学年	主として1・2回生	対象学生	文系向

[授業の概要・目的]

Physics is the foundation of our understanding of the natural world. This course introduces the fundamental principles of mechanics, electrostatics, and electricity, emphasizing both intuitive understanding and mathematical reasoning. Designed for first- and second-year students, including those from non-physics majors, it focuses on problem-solving skills and real-world applications.

Through interactive lectures, practical examples, and mathematical exercises, students will develop a physicist's way of thinking, learning how to analyze and describe natural phenomena using physics.

[到達目標]

By the end of this course, students will be able to:
1. Understand fundamental principles of mechanics, electrostatics, and electricity, and their role in everyday life.
2. Apply mathematical reasoning to describe and predict physical behavior.
3. Develop problem-solving skills to tackle unfamiliar physics problems systematically.
4. Recognize real-world applications of physics, from simple motions to advanced applications.

[授業計画と内容]

Week 1: Foundations of Physics
- Course structure, objectives, and expectations
- The scientific method and its role in physical inquiry
- Review of essential mathematical tools (algebra and trigonometry)

Weeks 2-3: Kinematics
- Description of motion: displacement, velocity, and acceleration
- Vector representation and analysis in one and two dimensions

Weeks 4-7: Newtonian Mechanics
- Newton’s first, second, and third laws of motion
- Systematic problem-solving approaches in classical mechanics
- Free-fall motion and gravitational acceleration
- Second-order systems: mass#8211spring#8211damper models
- Projectile motion and trajectory equations

Weeks 8-9: Electrostatics
- Electric charge and elementary charge
- Coulomb's law
- Quantitative analysis of electrostatic forces

Weeks 10-13: Electricity

Physics for All-E2(2)へ続く↓↓↓

Physics for All-E2(2)

- Electric potential, current, and power
- Ohm's law
- RC circuits and transient behavior

Week 14: Final Review

[履修要件]

Students should be familiar with high-school level mathematics, including algebra, basic calculus, and vectors. Prior experience with physics in high school is helpful but not required. The course will introduce concepts step by step to accommodate students with varying backgrounds.

[成績評価の方法・観点]

Evaluation:
- Attendance & Quiz: 15%
- Punctuality: 5%
- Short Tests and Assignments: 80%

Passing requirements:
1. A minimum overall score of 60% is required to pass the course.
2. Students must attend at least 50% of scheduled classes.
3. Students who do not meet the attendance requirement will not pass the course, regardless of their total score.

[教科書]

H.D. Young and R.A. Freedman 『University Physics with Modern Physics, 15th Edition』 （Pearson）
ISBN:978（0135159552）

[授業外学修（予習・復習）等]

- Students are expected to review lecture notes and attempt practice problems before the next class.
- Reading relevant textbooks in advance is recommended to enhance understanding and class engagement.
- Preparing for the tests/assignments will require consistent revision throughout the course.

[その他（オフィスアワー等）]

[主要授業科目（学部・学科名）]