科目ナンバリング	U-LAS12 10005 LE57						
授業科目名<英訳>	Fundamental Physics B Fundamental Physics B			担当者所属職名・氏名	工学研究科　准教授　QURESHI, Ali Gul		
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4	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]

The objective of this course is to introduce fundamental concepts of physics relating with electricity and magnetism.

[到達目標]

. To understand the basic concepts of electricity and magnetism
. To be able to relate and appreciate the role of these concepts in many natural phenomenon
. To learn about the working of inventions (such as motors, generators, etc.) based on applications of these concepts.

[授業計画と内容]

1)- Introduction to Electric fields, electric charge, Coulomb's law, Electric Flux, Gauss's law, Electric Potential, Equipotential lines and electric fields.(3 weeks)

2)- Capacitance and capacitors: Capacitors connected in parallel and series, Equivalent Capacitance (2 weeks)

3)- Electric Current, Ohm's Law, Resistors in parallel and series, Equivalent resistance, Kirchhoff ’s rules (3 weeks)

4)- Introduction to Magnetic Fields, Torque on a Current Loop, charged particle in uniform magnetic field, Magnetic flux (2 weeks)

5)- Electrocmagnetic Induction: Faraday's Law, Lenz's law, generators (2 weeks)

6)- Maxwell's Equations and Electromagnetic Waves (2 weeks)

7)- Feedback (1 week)

[履修要件]

This course is intended mainly for students who studied physics at high school.

[成績評価の方法・観点]

Weekly submission of class examples, class participation and homework (20%), Snap quizzes (15%), Final examination(65%).

[教科書]

授業中に指示する

[参考書等]

（参考書）

Samuel J. Ling et al. 『University Physics, Vol. 2』（OpenStax）（The book is available online at https://openstax.org/details/books/university-physics-volume-2）

Fundamental Physics B(2)へ続く↓↓↓

Fundamental Physics B(2)

Serway, R.A & Jewett, J.W. Jr. (2011)『Physics for Scientists and Engineers With Modern Physics』（Brooks/Cole Publishers）ISBN:978-1133947271

[授業外学修（予習・復習）等]

Students are advised to go through the class handouts and the readings suggested in the class for each topic. Homework is assigned to strengthen the learning of the topic covered in the class, therefore, it is advised to the students to do homework regularly and carefully.

[その他（オフィスアワー等）]

[主要授業科目（学部・学科名）]

理学部