

(Course Title) Physics in Kyoto iUP preparatory course	(Course offered period) 2nd Semester (Numbers of weekly frame) Two
(Affiliated department) Institute for Liberal Arts and Sciences	(Class style) Lecture and Exercise (Eligible students) Students of Kyoto
(Job title) Professor	iUP Preparatory course
(Name) YODEN, Shigeo; MATSUBARA Seijiro	(Day/period) Tuesday/2 and Wednesday/2
(Outline and Purpose of the Course) Providing students with basic knowledge of mechanics and electromagnetism required for admission into undergraduate school of science, engineering, and agriculture.	
(Course Goals) The goal is to acquire the physical knowledge that is equivalent to the graduates of Japanese high school, and to acquire the knowledge and skills to solve the EJU level problems. EJU: Examination for Japanese University Admission for International Students	
(Course schedule and Contents) The lectures and exercises of the following topics will be executed. <ul style="list-style-type: none"> • Mechanics: Equilibrium of forces, Friction, Newton's equation of motion, Conservation of momentum, Impulse, Conservation of mechanical energy, Centrifugal force, Law of universal gravitation • Electromagnetism: Coulomb's law, Electric field, Electric potential, Capacitor, Register, Ohm's law, Coulomb's law of magnetic force, Magnetic field, Biot-Savart's law, Fleming's left-hand rule, Lorentz force, Electromagnetic induction 	
(Class requirement) Students in the Kyoto iUP preparatory course	
(Evaluation methods and policy) The mid-term and final examinations are used to evaluate the students' progress.	
(Regarding studies out of class (preparation and review)) Preparation is required if any foundational content in the distributed materials is unfamiliar. Each class session will last 90 minutes, divided into three 30-minute segments. The first 30 minutes will be dedicated to reviewing questions and answers from the previous week. The next 30 minutes will involve answering new questions without any reference materials, and the final 30 minutes will be allocated for other activities such as summarizing related fundamental laws and concepts.	
(Others (office hour, etc.)) Based on the student's level of understanding, interviews will be scheduled as needed.	
(Textbook) Please bring your own textbooks used in high school.	
(References) Additional materials will be assigned to students whose understanding level is insufficient.	
(Related URL)	

(Course Title) Advanced Physics in Kyoto iUP preparatory course	(Course offered period) 2nd Semester (Numbers of weekly frame) One
(Affiliated department) Institute for Liberal Arts and Sciences (Job title) Professor (Name) YODEN, Shigeo	(Class style) Lecture and Exercise (Eligible students) Students of Kyoto iUP Preparatory course (Day/period) Monday/2
(Outline and Purpose of the Course) The purpose of this course is to experience past entrance examinations of Kyoto University. The goal is to bridge the gap between the physics studied in high school and what will be taught at Kyoto University for freshmen. This requires thorough and deeper thinking skills, focusing more on understanding than on answering many relatively simple questions under time constraints, as in the EJU-type exams. We also include a 30-minute section to develop fundamental Japanese language skills for learning physics, by studying the same past entrance exams in both English and Japanese.	
(Course Goals) The final goal is to acquire the knowledge of solving problems comparable to the level of Kyoto University entrance examination.	
(Course schedule and Contents) The lectures and exercises will cover the following topics: <ul style="list-style-type: none"> • Mechanics: shock absorber models, parabolic motion on a moving slope base, circular motion in a vertical plane, circular motion of a small ball on a cart, simple harmonic oscillation of two objects connected by a spring • Electromagnetism: Hall effect and transfer of charge in a capacitor, AC/DC circuits including condensers and resistors, charge in a conductor rod across a magnetic field, electromagnetic induction by a ladder coil, a circular accelerator Each class session will last 90 minutes, divided into three 30-minute segments. The first 30 minutes will be dedicated to explaining answers to questions from the previous week. The next 30 minutes will involve answering new questions without any reference materials, and the final 30 minutes will be allocated for other activities such as studying the same questions in Japanese or summarizing important fundamental concepts.	
(Class requirement) Students in the Kyoto iUP preparatory course.	
(Evaluation methods and policy) No performance evaluation.	
(Regarding studies out of class (preparation and review)) Any specific preparation is not requested. The review of each day questions would be important at home to find the true answers by referring to textbooks or references. The explanation of the question and answer will be given in the next week class.	
(Others (office hour, etc.)) Please make an appointment, if any office-hour activity is necessary.	
(Textbook) The original material prepared by the teacher is uploaded to PandA before each lecture.	
(Related URL)	