科目ナンバリング															
授業科目 [:] <英訳>	名 Introd Introd	duction to	Modern Modern	Or Or)ptics-E2)ptics-E2			担当者所属 職名・氏名 工学研究			究科	特定准教授 BEAUCAMP, Anthony Tadeus Herve			P , Anthony Tadeus Herve
群	自然科学	然科学科目群			分野(分類)						使用言語 英語			语	
旧群	B群	単位数	2単位		週コマ数	1=	।र		授業	受業形態 講			(対面授	業科	·目)
開講年度・ 開講期	^{講年度・} 2025・前期 曜時限 月4] 4	4			配当学年		主として	主として1・2回生		対象学生		理系向
[授業の	既要・目	的]													
Optics is every oth Students (refractio and their	Optics is a very practical field of physics that has enabled the fabrication of instruments and devices in almost every other areas of science and technology, including chemistry, biology, geology, etc Students will learn the fundamental properties and behavior of light, and its interaction with matters (refraction, dispersion, diffraction, polarization). The theory of geometric and wave optics will be taught, and their use in designing high performance optical assemblies from digital cameras to space telescopes.														
[到達目標]															
 Grasp the importance of optics in enabling modern science and technology. Understand the various aspects of light propagation in a vacuum and substance. Use this knowledge to solve optical design problems using state-of-the-art optical design software. 															
[授業計]	[授業計画と内容]														
 A brief history of optics and the nature of light [1 week]. Basic of optics: Wavefronts, Fermat's principle, Snell's law [1 week]. Geometric optics: Ray transfer matrices, thin vs. thick lenses [2 weeks]. Imaging systems: Aperture/field stops, pupils, field of view [2 weeks]. Optical aberrations: Chromatic and geometric aberrations [2 weeks]. Wave optics 1: Huygens-Fresnel principle, interferometers [2 weeks]. Wave optics 2: Fraunhofer diffraction, point spread function [2weeks]. The Optical Software for Layout and Optimization (OSLO): Learn how to layout optical systems [1 week]. Learn how to optimize the performance of optical systems [1 week]. Final examination [1 week]. 															
[履修要件]															
特になし	特になし														
【しん 値の方法・観点】 Evaluation will be based on:															
 Class Pa and their Homew methods I Quizzes lectures a Final ex cases and 	applicati applicati ork (20% earnt du (20%): 1 nd study aminatio original	on (10%) on. b): Typica ring lectu Mini-exan guides (e on (50%): cases.	I student Student res (every ns, to che every 4 we You will	pan ns v 2 cck eek be	rticipation w will be assig weeks). that you ren (s). tested with	vill b gned men a se	oe as , wh nber eries	ked i ich y impo of pr	n solv ou ca ortant oblen	ving pr n solve laws as ns that	obler by a nd pr com	ms a appl rinc bine	and discu lying the iples fror e previou	laws laws n pro sly s	g theories s and evious studied

Introduction to Modern Optics-E2(2)へ続く

Introduction to Modern Optics-E2(2)

[教科書]

Eugene Hecht [©]Optics (4th Edition) ISBN:129-202-157-8 (Amazon link: http://www.amazon.co.jp/ Optics-Eugene-Hecht/dp/1292021578/)

[参考書等]

(参考書)

授業中に紹介する

[授業外学修(予習・復習)等]

Personal study using book by Hecht (10~15 pages per week).

[その他(オフィスアワー等)]

Questions can be sent by email, and will be answered either electronically or by appointment (depending on the case).

[主要授業科目(学部・学科名)]