수업계획서

1. 과목정보

과 목 명 (Course Title)	광신호처리	과목코드 (Course Number)	RT625(01)	학점 (Course Credits)	3.0
학부/전공 (Major)	로봇공학전공			년도/학기 (Year/Semester)	2022/1학기
담당교수명 (Instructors(s)	문인규	강의시간/강의실 호수 (Class Time/Classroom)		월2B-3B(E5 - 115), 수2B-3B(E5 - 115)	
연구실 호수 및 e-mail (Office/E-mail)	연구실 : E5-608 (교수실) inkyu.moon@dgist.ac.kr			연락처 (Contact Number)	T):053-785-6223 H):010-5590-8216

2. 강의계획

교과 개요 (Course Description)	Optical signal processing have been developed for quantitative analysis of biological specimens and cryptography. This introductory course explains basic concepts of optical signal processing to students who have no previous knowledge or experience with it.					
교과 목표 (Course Objectives)	This course provides students with a basic understanding of the scientific principles associated with 1) Fourier optics and 2) applications in biomedical optics and optical cryptography. Digital holographic imaging systems are introduced in this course for quantitative analysis of biological samples and information encryption. In additions, this course explains about how to implement Fourier optical theory and analytic methods on the computer with numerical optical imaging simulations. A primary objective of this course is to discuss the different options and modalities available for consideration when designing digital holographic imaging systems, including each of their advantages and disadvantages with respect to their applications.					
교재 및 참고문헌 (Required Texts & References)	교재구분	교재명	저자명	출판사	발행년도	정가
	주교재	Computational Fourier Optics	D. Voelz	SPIE Press	2011	
	부교재	Introduction to Fourier Optics,	J. Goodman		2017	
수행 임무 및 평가 체계 (Assignments & Grading)	평가방법		평가비율	비고		
	Final exam		50	Presentation for assignment		
	Midterm exam		40	Midterm Exam		

	평가방법	평가비율	비고
수행 임무 및 평가 체계 (Assignments & Grading)	Class Participation	10	
세부 일정 (Class Schedule)	Week 1: Introduction to optical signal processing Weeks 2&3: Analytic Fourier theory review Weeks 4&5: Scalar diffraction and propagation simulations Week 6: Transmittance functions, lenses, and gratings Week 7: diffraction-limited optical imaging simulation Week 8: Mid-term exam Weeks 9&10: Digital holographic imaging systems (DHIS) Weeks 11&12: Biomedical applications with DHIS Week 13: Optical cryptosystems Weeks 14&15: Final exam (presentation for individual assignment)		
학습윤리 (Academic Integrity)	Comply with University education policy		
교과 정책(방침) (Course Policies)	■ To come to class on time. ■ To refrain from using cell phones during class. ■ To spend an adequate amount of time on the project and the homework each week.		
이번 학기에 사용할 교수활동 (Main Instructional Activities)	①강의(lecture) ②발표(persentation) ③거꾸로 수업(flipped-learning) ④토론/토의(discussion) ⑤팀티칭(team teaching) ⑥동료교수(peer teaching) ⑦프로젝트(project) ⑧실험/실습(experiment) ⑨기타(etc.)( )		