

2023년도 1학기 로보틱스 수업계획서

교과목명 Course Title	(국문)	로보틱스	(영문)	Robotics
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담당교수(소속) Lecturer	곽관웅 (기계공학과)	학수번호/구분/학점 (Course No. /)	006486/전공선택/3학점
		강의시간/강의실 (Class Hour/Venue)	화목 10:30-12:00 / 광109
선수과목 (Course Prerequisite)	Dynamics	수강대상 (Target Student)	Mechanical Engineering Senior
		연구실/Office Hour (Office/Office Hour)	총1114, Tue/Thrs 13:30 - 15:00

교과목표 (Objectives)	Basic theory of robotics engineering will be covered in this course. To obtain in-depth understandig of robots extending its applications in industries and daily life throuth the lectures on the coordinate setup, coordinate transformation, kinematcs, robot dynamics, robot mechanism, robot control, robot acuator and sensors
핵심역량 (Competencies related to this course)	<input checked="" type="checkbox"/> 논리비판적사고 (Logical and Critical Thinking) <input checked="" type="checkbox"/> 창의융합적사고 (Creative and Convergent Thinking) <input type="checkbox"/> 자기관리 (Self-management Competency) <input type="checkbox"/> 문제해결 (Problem Solving Competency) <input type="checkbox"/> 소통 (Communication Competency) <input type="checkbox"/> 글로벌 (Global Competency) <input type="checkbox"/> 공동체의식 (Community Competency)
이번 강의의 개선을 위한 개선계획 CQI (Continuous Quality Improvement Plan)	로봇 actuator, 로봇 센서, 메카트로닉스 강화
교재 (Text book)	Main text: Students may pick either one of the following two text books for their main text. Seungbin moon, kyungchul Ko, kwan-Woong Gwak, "Intelligent robotics", SciTech MEdia OR John J. Craig, Introduction to Robotics, Mechanics and Control (3rd edition), Wiley. Reference : 1. Mark W. Spong, Seth Hutchinson, W. Vidyasagar, "Robot Modeling and Control", John Wiley & Sons, 2009. 2. Saeed S. Wiku, Introduction to Robotics: Analysis, Systems, Applications (2판), Prentice Hall. 3. 장승, 로보공작: Matlab 및 Simulink 응용, 충남대학교 출판부
과제도서 (Assignment book)	Seungbin moon, kyungchul Ko, kwan-Woong Gwak, "Intelligent robotics", SciTech MEdia John J. Craig, Introduction to Robotics, Mechanics and Control (3rd edition), Wiley.
과제물 (Assignment)	homework problems with which main topics would be understood and reinforced will be given. homeworks are due in one week after given
학업성취 평가방법 (Course Grading)	[절대평가] 중간고사(%) : 40, 기말고사(%) : 20, 수시평가및과제(%) : 10, 출석(%) : 10, Term Project : 20, midterm exam(40 %), final exam(25 %), Term project (15%), homework(10 %), attendance(10 %)

주별 교과내용 (교과목명 : 로보틱스)

주 (Week)	교 수 내 용 (Course Contents)	수업형태 및 활용기자재 (Etc.)	비 고
1	Introduction to robotics	Blackboard & projector	
2	Course overview	Blackboard & projector	
3	Position and Orientation, Rotation matrix Homogeneous Transformation, Inverse Transformation	Blackboard & projector	
4	Composition of Transformation, Transform equation, Successive Coordinate Transformation Euler angle, Roll-Pitch-Yaw	Blackboard & projector	
5	Coordinate setup and link parameter Forward kinematics	Blackboard & projector	
6	Inverse kinematics velocity kinematics: jacobian	Blackboard & projector	
7	velocity kinematics: jacobian	Blackboard & projector	
8	Midterm exam		

주별 교과내용 (교과목명 : 로보틱스)

주 (Week)	교 수 내 용 (Course Contents)	수업형태 및 활용기자재 (Etc.)	비 고
9	Maipulator Statics	Blackboard & projector	
10	Maipulator Dynamics	Blackboard & projector	
11	Maipulator Dynamics	Blackboard & projector	
12	path planning	Blackboard & projector	
13	Maipulator control	Blackboard & projector	
14	Actuators & Sensors	Blackboard & projector	
15	Term Project presentation	Blackboard & projector	
16	Final Exam		

<p>추 가 안내사항1 (Additional Guide1)</p>	<p>특별한 지원이 필요한 경우(장애학생 등) 학기 첫 주에 담당교수와의 면담을 통해 출석, 강의, 과제 및 시험 등에 관한 교수학습지원 사항을 요청할 수 있음. Students who require special assistance (including special needs students) may contact their professors during the first week of the semester to discuss issues related to attendance, lectures, assignments and exams and request learning assistance.</p>
<p>추 가 안내사항2 (Additional Guide2)</p>	