

강의계획서

[수업기본정보]

교과목명	인공지능	과목코드 / 이수구분	3228 / 전선
개설학과	컴퓨터공학부	학년	3
학점 / 시간	3 / 3	강의시간	화(10-12), 목(10-12)
강의유형	이론	수업유형	
강의비율(녹화:실시간:대면)	0:0:100	강의종류	일반

[담당교수정보]

교수	홍상우	연락처
이메일		면담시간

[강의역량및 목표]

핵심역량	종합적사고력, 성실성, 창의역량		
	스스로 학습활동에 대한 원칙과 계획을 세우고 체계적으로 실천할 수 있다.		
핵심역량강의목표	사물과 사건을 다양한 각도에서 바라보며 새로운 아이디어와 방법을 도출하고 활용할 수 있다		
	다양한 정보와 지식을 이해하고 문제를 규명하며 분석·추론하여 이를 바탕으로 문제 해결에 적용할 수 있다		
주 전공역량	최신 컴퓨터 기술 파악 및 적용	교과목의 연관성	상
주 전공역량 정의	빠르게 발전하는 컴퓨터 분야의 기술에서 최신 기술을 파악하고 이를 바로 문제해결에 적용하는 능력		
보조 전공역량1	알고리즘적 문제 해결 능력	교과목의 연관성	상
보조 전공역량1 정의	까다로운 알고리즘적 문제를 해결하여 계산속도/저장공간 등 향상을 이루어 SW를 진일보 시키는 능력		
보조 전공역량2	교과목의 연관성		
보조 전공역량2 정의			
역량기반 교육목표	Understand the basic AI algorithms and their differences. Able to make a simple AI model by using multiple AI algorithms		

[주별 강의계획서]

1주차 03-03 ~ 03-09	주별학습목표	Introduction and History of Artificial Intelligence
	강의내용	- What is AI? (Definitions and Perspectives) - Early Roots: Philosophy, Logic, and Myths - Birth of AI: Turing Test & Dartmouth Conference - AI Winters and Revivals - Modern AI Milestones (Deep Blue, AlphaGo, ChatGPT)

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2주차 03-10 ~ 03-16	강의실	화10-12(공C487), 목10-12(공C487)
	주별학습목표	Principles, Goals, and Future of Artificial Intelligence
	강의내용	- Principles: Top-down vs. Bottom-up Approaches - Goals of AI: Thinking vs. Acting, Human vs. Rational - Short-term Applications vs. Long-term Dreams - Future of AI: General AI, Multimodal AI, Human ? AI Collaboration - Risks and Opportunities Ahead
	수업유형	
	학습활동	
	강의실	화10-12(공C487), 목10-12(공C487)
3주차 03-17 ~ 03-23	주별학습목표	Data / Information / Knowledge and Abstraction / Language / Conceptualization
	강의내용	- Difference: Data → Information → Knowledge → Wisdom - Abstraction: Simplifying Complexity - Language as a Representation of Knowledge - Conceptualization: How Humans and AI Structure Ideas - Examples: Knowledge Graphs, Ontologies
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	학습활동	
	강의실	화10-12(공C487), 목10-12(공C487)
4주차 03-24 ~ 03-30	주별학습목표	AI Planning (Search) Algorithms
	강의내용	- Problem Solving as Search - Uninformed Search (BFS, DFS) - Informed Search (Heuristics, A*) - Path Planning and Optimization - Applications: Games, Navigation, Scheduling
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	강의실	화10-12(공C487), 목10-12(공C487)
5주차 03-31 ~ 04-06	주별학습목표	Logic-based AI (Expert Systems)
	강의내용	- Symbolic AI & IF ? THEN Rules - Knowledge Representation (Propositional & Predicate Logic) - Expert Systems: MYCIN, DENDRAL - Rule-based Reasoning vs. Probabilistic Reasoning - Strengths and Weaknesses of Symbolic AI
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6주차 04-07 ~ 04-13	강의실	화10-12(공C487), 목10-12(공C487)
	주별학습목표	Neural Network-based AI (NN)
	강의내용	- Biological Inspiration: Neurons and Synapses - Perceptron and Multilayer Networks - Backpropagation and Training- Strengths of Neural Networks - Limitations and Overfitting Issues
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	학습활동	
	강의실	화10-12(공C487), 목10-12(공C487)
7주차 04-14 ~ 04-20	주별학습목표	Machine Learning
	강의내용	- Supervised vs. Unsupervised vs. Reinforcement Learning - Deep Learning and Representation Learning - Convolutional Neural Networks (Image Classification Example) - Applications: Vision, NLP, Speech - Challenges: Data Hunger, Black-box Nature
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	강의실	화10-12(공C487), 목10-12(공C487)
8주차 04-21 ~ 04-27	주별학습목표	Midtem Exam
	강의내용	Midtem Exam
	수업유형	
	학습활동	
	강의실	화10-12(공C487), 목10-12(공C487)
9주차 04-28 ~ 05-04	주별학습목표	Deep Learning
	강의내용	- Convolutional Neural Networks (Image Classification Example) - Applications: Vision, NLP, Speech - Challenges: Data Hunger, Black-box Nature
	수업유형	
	학습활동	
	강의실	화10-12(공C487), 목10-12(공C487)
10주차 05-05 ~ 05-11	주별학습목표	Complex Systems Modeling with Automata (Artificial Life)
	강의내용	- What is Automata? (Finite State Machines, Cellular Automata) - Conway's Game of Life - Emergence: Complex Patterns from Simple Rules

		- Modeling Biological and Social Systems - Artificial Life & Simulation
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	강의실	화10-12(공C487), 목10-12(공C487)
11주차 05-12 ~ 05-18	주별학습목표	Evolutionary Programming (Genetic Algorithms)
	강의내용	- Inspiration from Natural Selection - Key Operators: Selection, Crossover, Mutation - Solving Optimization Problems - Genetic Programming and Applications - Strengths and Limits of Evolutionary Methods
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	학습활동	
	강의실	화10-12(공C487), 목10-12(공C487)
	주별학습목표	Artificial General Intelligence & Strong AI (Natural vs. Artificial Intelligence)
	강의내용	- Narrow AI vs. General AI - What is Strong AI? - Natural Intelligence vs. Artificial Intelligence - Philosophical Questions: Consciousness & Understanding - Current Research toward AGI
12주차 05-19 ~ 05-25	수업유형	
	학습활동	
	강의실	화10-12(공C487), 목10-12(공C487)
	주별학습목표	Artificial Emotions & Artificial Minds (Mindware)
	강의내용	- What is Mindware? - Can Machines Have Emotions? - Modeling Human-like Decision Making - Artificial Emotions in Robots and Agents - Implications for Human ? AI Interaction
13주차 05-26 ~ 06-01	수업유형	
	학습활동	
	강의실	화10-12(공C487), 목10-12(공C487)
	주별학습목표	Limits of AI
	강의내용	- Technical Limits: Data, Computation, Generalization - Theoretical Limits: Godel's Incompleteness, Halting Problem - Human-like Understanding and Creativity - Economic & Social Limits (Costs, Bias, Fairness)- Future Boundaries: What AI Cannot Do?
	수업유형	
14주차 06-02 ~ 06-08		

15주차 06-09 ~ 06-15	학습활동	
	강의실	화10-12(공C487), 목10-12(공C487)
	주별학습목표	AI and Ethics
	강의내용	- Privacy and Surveillance - Fairness and Bias in AI - AI and Job Displacement - Responsible AI Development (Ethical Principles) - AI for Good: Healthcare, Education, Climate
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	학습활동	
	강의실	화10-12(공C487), 목10-12(공C487)
	주별학습목표	Final Exam
16주차 06-16 ~ 06-22	강의내용	Final Exam
	수업유형	
	학습활동	
	강의실	화10-12(공C487), 목10-12(공C487)
	주별학습목표	Final Exam

[성적평가방법]

평가방법	
평가 항목 및 기준	출석(10%)중간(40%)기말(40%)과제(10%)퀴즈(0%)발표(0%)프로젝트(0%)토론(0%)기타5(0%)

[학습 활동에 대한 세부 내용]

구분	주제	제출일	제출방법
과제	Will be announced at the class time	2026.06.25	

[관련 도서 및 참고자료]

	교재	저자/역자	출판사
부교재	Introduction to Artificial Intelligence	김은이	

[수강생유의사항]

Exam Schedule & Course Policies
Midterm Exam: April 21 (Tuesday), 18:00 - 21:00 (Problems will be given in English)
Final Exam: June 16 (Tuesday), 18:00 - 21:00 (Problems will be given in English)
[Important Notices]
Schedule Conflicts: Please double-check the exam schedule before registering to ensure there are no overlaps with other courses.

Requests for schedule changes or individual makeup exams will not be granted under any circumstances.

Grading Policy: A grade of 'F' will be automatically assigned if a student receives a zero (0) in any of the following categories: Attendance, Midterm Exam, or Final Exam.

Enrollment Limits: Due to classroom capacity constraints, we cannot accept students beyond the official enrollment limit.

Attendance Requirement: This course includes mandatory in-person lab sessions. Students who cannot attend in person (e.g., those seeking "Early Employment" waivers) are not eligible to enroll.

Laboratory Safety Education: In accordance with the "Act on the Establishment of a Safe Laboratory Environment," all students enrolled in this course must complete the statutory safety training at safety.konkuk.ac.kr.

※ 해당 수업 수강생은 '연구실 안전환경 조성에 관한 법률'에 의거 법정 연구실 안전교육을 이수하시기 바랍니다.(safety.konkuk.ac.kr)
