

Syllabus [2025Year 2 Term]

Course Information

Course Title	Algorithm	Credits	3
Course Code	372460-3	Required/Elective (For Undergraduate Courses)	Selective majors
Department or Major	Department of Mobile Systems Engineering	Language	English
Methods of Teaching		Lecture Room	수9,10,11/ 목9,10,11(국제506)
Time Allotment	Lecture(3) Experiments(0) Trainging & Practice(0) Performance(0) Designing & Planning(0)	Cyber Lectures	
Course Type	offline		
Cyber Lectures Preview			

Lecturer

Lecturer	Name	KIM TAE YOON	Rank	Assistant Professor	Final Academic Degree	공학박사
	Department & college	Department of Mobile Systems Engineering		Office		
	Office Phone Number	031-8005-3641		e-mail	2000kty@dankook.ac.kr	
	Field of Interest					

Course Summary

Course Description	<p>This subject is a practical major requirement regardless of its classification in the curriculum and is a core area of computer science. All procedures for solving problems or processing data on a computer are expressed as algorithms. Among them, you must be able to use major algorithms that have already been proposed and completed well. Through the course, you will study the process by which algorithms for major computational problems are proposed, analyzed, and reached in a completed form.</p> <p>Since these existing completed algorithms are in fact programming tools themselves, regardless of the progress of the course, students should clearly memorize (as much as possible) these algorithms, program them, and make efforts on their own to be able to implement them. I hope you will realize and see that such memorization and mastery of programming is the most effective and quick way to solidify your position as an expert and gain an edge in industry competition. (Applicable to students who wish to secure a significant position as an expert) In the process of these efforts, when faced with a certain computational problem</p>
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	em, you may raise your ability to distinguish and recognize the differences between 'case s where a new algorithm must be constructed on one's own' and 'cases where an existin g completed algorithm must be used'. In any case, if you successfully make these efforts, you will become confident about your field of study and your future, and you will be able to end your wandering in life, at least until middle age. Please consider whether or not you s hould invest in the determination and implementation to combine the contents of this course with your life. Students wishing to take the course must have excerpted dozens of example s from a programming language textbook (well-known languages such as C/C++/JAVA/Py thon) and run them on a computer. Or, you should have practiced at that level. Even fairly easy textbooks are fine. For students who haven't tried it, do it now.
Description Related Courses	One of the programming languages (well-known languages such as C/C++/JAVA/Python)
Course Goals	1. You can select an algorithm that can solve a given problem. 2. The complexity of the basic algorithm can be derived.
Projected Result s	
Percentage of th e original langua ge classes(%)	
Cyber Lectures P review	

## Syllabus

Times	Lecture Topic	Lecture Goals	Lecture Methods	Assignments
1	Algorithm, introduction		vidoe, under constr uction	
2	scheme of algorithm analysis		vidoe, under constr uction	
3	Run time analysis: Growth of Fu nctions			
4	Run time analysis: Recurrences			
5	Sortings: HeapSort			
6	Sortings: QuickSort			
7	Sortings: Types of Sort Algorith ms			
8	Graph algorithm: Visiting			
9	Graph algorithm: MST			
10	Graph algorithm: ShortestPath			
11	Approximation Optimization: Gre edy			
12	Approximation Optimization: Dyn amic			
13	Approximation Optimization: Dyn amic			

Times	Lecture Topic	Lecture Goals	Lecture Methods	Assignments
14	Approximation Optimization: NP-hard		final exam date, candidate – not yet fixed	
15	Approximation Optimization: NP-hard		final exam date, candidate – not yet fixed	

## Methods of Grading

sequence	Description	Percentage	Details
1	Mid-term Exam	40%	
2	Final-exam	40%	
3	Pop Quizzes	0%	
4	Assignments	10%	
5	Reports	0%	
6	Presentations & Discussions	0%	
7	Attendance	10%	
8		0%	
9	Others	0%	
All		100%	

## Core of Value

핵심가치	전공역량	역량정의	역량구분	값(%)
혁신 (Discovery)	창의적문제해결 (Creative problem-solving)	주어진 상황과 문제를 창의적으로 해결할 수 있는 능력	주역량	0%
혁신 (Discovery)	도전 (Challenging)	전공 지식을 새로운 분야와 융합하고 아우를 수 있는 능력		0%
혁신 (Discovery)	지식융합 (Knowledge convergence)	새로운 분야를 개척하거나 도전적으로 임할 수 있는 능력		0%
헌신 (Dedication)	세계시민 (Universal value)	세계 공동체 구성원으로 전공자로서 국제적 이슈에 대응할 수 있는 능력		0%
헌신 (Dedication)	상호협력 (Cooperation)	공동의 목적 달성을 위해 타인과 상호협력을 할 수 있는 능력		0%
헌신 (Dedication)	공동체 (Sense of community)	공동체의 구성원으로서 필요한 태도와 윤		0%

핵심가치	전공역량	역량정의	역량구분	값(%)
		리의식을 가질 수 있는 능력		
능동 (self-Determination)	자기주도 (Self-Managing)	주어진 상황과 문제를 주도적이고 능동적으로 해결할 수 있는 능력	부역량	0%
능동 (self-Determination)	지식활용 (Knowledge application)	주어진 상황과 문제에 대해 논리적으로 파악하고 분석할 수 있는 능력	부역량	0%
능동 (self-Determination)	논리적사고 (Logical thinking)	전공관련 지식을 필요에 따라 다양하게 적용하고 활용할 수 있는 능력		0%
능동 (self-Determination)	의사소통 (Articulation)	대화를 통해 다양한 의견을 조율하고 합의를 이끌어 낼 수 있는 능력		0%

## Textbook(s) &amp; References

Description	Title	Author	Publisher
Required Textbook	Introduction to Algorithms, 3rd Edition (The MIT Press)	CLR 공저	MIT press

## Memo

none