Subject Numbering	TMA-MEE328E
Year	2021
Subject	(IMAC-U)Fundamentals of Information Science II
Credit(s)	2
Instructor	MASAYUKI SATO

Language	English
Object in Class subject and Object and summary of class and Goal of study(J)	
Object in Class subject and Object and summary of class and Goal of study	This class is given by using Google Classroom (class code: n5c6uzs) Aims: Students will acquire the basic knowledge about algorithms and data structures. Descriptions: Evaluation methods and programming techniques for making good programs are discussed. Goal: On completing the course, students will have the ability of designing and making good programs.
Other subject is relevant and complete a point to notice(J)	
Other subject is relevant and complete a point to notice	Prerequisites for regular course students are "Practice of Information Processing" and "Computer Seminar I." Taking "Fundamentals of Information Science I" is strongly recommended. Prerequisites for JYPE/DEEP/IMAC-U students are the similar courses as above. Students should have some knowledge about a computer language, preferably C or Java.
Contents and progress schedule of class(J)	
Contents and progress schedule of class	1. Introduction of this course, Computation, Algorithms 2. Evaluation of computational complexity 3. Data structures, Abstract Data Types (ADTs) 4. Basic data structures : array, list 5. Basic data structures : stack, queue 6. Basic data structures : graph, tree 7. Basic data structures : set, table (dictionary), hashing 8. Priority queue, heap 9. Binary search tree and Balanced search tree 10. Sorting : bubble sort, shell sort, bucket sort, radix sort, insertion sort 11. Sorting : heap sort, quick sort, merge sort 12. Graph searching : breadth-first search, depth-first search 13. Graph algorithms : minimum spanning tree, shortest path problem 14. Optimization problems 15. Wrap-up and Final Examination
self study(J)	
self study	Review: In order to understand the topics better, you should read again the handouts and the reference materials following the lectures.
Record and evaluation method(J)	
Record and evaluation method	The grade will come from the in-class final exam and two or three assignments. The final exam might be changed to an additional assignment.

	No	Title	Author	Publisher	Year	ISBN/ISSN	Classification
Textbook and references	1.	『Introduction to Algorithms』	Thomas A. Standish	Thomas H. Corme, et. al	2009	9780262033848	reference
	2.	『Algorithms』	Kevin Wayne and Robert Sedgewick	Addison-Wesley Professional; fourth edition	2011	032157351X	reference

URL	
Attached file	
Office hours(J)	
Office hours	
Notes	
Practical business	
In addition	
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