

シラバス参照

科目名/Subject	【JYPE】情報科学基礎
曜日・講時/Day/Period	後期 金曜日 4講時
科目群/Categories	JYPE科目
単位数/Credit(s)	2
対象学部/Object	
担当教員(所属) /Instructor (Position)	Takehiro ITO (Professor)
セメスター/Semester	Fall Semester, Friday 4 Lecture hour
科目ナンバリング /Course Numbering	-E
使用言語 /Language Used in Course	英語

授業題目 /Class Subject	Basic Computer Science
授業の 目的と概要 /Object and Summary of Class	This course provides an overview of some research fields of computer science to bridge fundamental theories of computer science with the cutting-edge research in our department. The course consists of algorithm theory, communication network, and parallel computing.
学修の 到達目標 /Goal of Study	Students will come to understand the association between the fundamental knowledge about computer science and the research activities. The emphasis will be on giving a broad overview of the research areas in computer science.
授業内容・ 方法と 進度予定 /Contents and Progress Schedule of the Class	<p>Please see Google Classroom. Class code: ehbptzr (The order of the parts is subject to change.)</p> <p>01. Introduction of this course</p> <p>[Algorithm Theory] Algorithms now play a very important role for the reliability and efficiency in several social systems. In this part, we focus on design and analysis of algorithms from the viewpoint of theoretical computer science. The main topics are as follows: 02. What is algorithm? Power of “efficient” algorithms 03. How to evaluate algorithms 04. Basic techniques for algorithms (1) 05. Basic techniques for algorithms (2) 06. Algorithms for computationally hard problems 07. Online algorithms</p> <p>[Communication Network] Communication network infrastructure needs to be resilient to natural disasters. In this part, we focus on the information and communication technology for disaster response and recovery. The main topics are as follows: 08. Basic technologies for communication networks 09. UAV network 10. Wireless mesh network 11. Device to Device (D2D) network</p> <p>[Parallel Computing] Parallel computing is extremely important in many fields such as numerical simulations, artificial intelligence, machine learning, optimizations, etc. In this part, we focus on learning different parallel computation techniques, their bottlenecks and how to simply run a program in parallel. The main topics are as follows: 12. Basics of parallel computing 13. CPU-based multicore computing 14. GPU parallel computing 15. Introduction to multi-processor parallel computing</p>
成績評価 方法 /Evaluation Method	Evaluation is performed comprehensively based on reports, exercises and activities during the lecture time, etc. Details will be announced in the lectures.
教科書 および 参考書 /Textbook and References	
関連URL /URL	Please see Google Classroom. Class code: ehbptzr



授業時間外 学修 /Preparation and Review	Students are required to make a thorough review. They are also expected to learn topics related to the class by themselves. Such related topics and keywords will be provided during the lectures.
その他 /In Addition	
更新日付 /Last Update	2024/03/26 22:46

1単位の授業科目は、45時間の学修を必要とする内容をもって構成することを標準としています。1単位の修得に必要な学修時間の目安は、「講義・演習」については15～30時間に授業および授業時間外学修（予習・復習など）30～15時間、「実験、実習及び実技」については30～45時間の授業および授業時間外学修（予習・復習など）15～0時間です。

One-credit courses require 45 hours of study. In lecture and exercise-based classes, one credit consists of 15-30 hours of class time and 30-15 hours of preparation and review outside of class. In laboratory, practical skill classes, one credit consists of 30-45 hours of class time and 15-0 hours of preparation and review outside of class.

