

シラバス参照

科目ナンバリング	TMA-MEE320E
開講年度	2024
科目名	(IMAC-U)情報科学基礎 I
科目名(英語)	(IMAC-U) Fundamentals of Information Science I
単位数	2
担当教員	小林 広明
メディア授業科目 /Media Class Subjects	
主要授業科目 /Essential Subjects	○

開講言語	
授業の 目的・ 概要及び 達成方法等	
授業の 目的・ 概要及び 達成方法等 (E)	<p>This class will be managed by Google classroom, whose class code is xnt2pve, and given in-person in Room 213 of Mechanical Engineering building. Sometime, this class will be also delivered in a real-time on-line fashion. Please check the google classroom before attending the class on every Monday and Thursday, at 1:00pm (until 2:30).</p> <p>1. Class subject(目的) As the learning goal, students have acquired the knowledge of circuit design and organization of modern computer systems.</p> <p>2. Object and summary of class(概要) After the quick review of computer systems development in the history, the course gives the mathematical foundation for computer system design. Based on the mathematical foundation, the design methodology of basic circuits such as combinational circuits and sequential circuits is given. And then, the course describes how a computer system is constructed by using several basic combinational and sequential circuits, and discusses its functionality to carry out arithmetic and logic operations. In addition, the format of a machine language to direct operations to the computer system and its interpretation to generates control signals will be presented.</p> <p>3. Goal of study(達成目標等) In this course, students should be able to: (1) know the concept of today's computers based on the history of computers development, (2) learn data representation for computers and the mathematical foundation of computer arithmetic, and (3) understand the concrete structure and functionality of modern computer systems through their basic components of arithmetic unit, memory and control unit as building blocks in terms of hardware and software.</p>
他の授業 科目との 関連及び 履修上の 注意	
他の授業 科目との 関連及び 履修上の 注意(E)	<p>Students are strongly recommended to take</p> <p>1) The Basics of Information Sciences and 2) Computer Software Engineering.</p>
授業計画	
授業計画 (E)	<p>1. Course Introduction, and History and Fundamentals of Computers 2. Number Representation: Binary Digit (Part I) 3. Number Representation: Binary Digit (Part II) 4. Boolean Algebra (Part I) 5. Boolean Algebra (Part II) 6. Combinational Logic and it Applications (Part I) 7. Combinational Logic and it Applications (Part II) 8. Sequential Logic: Basics (Part I) 9. Sequential Logic: Basics (Part II) 10. Sequential Logic: Applications (Part I) 11. Site Visit to Supercomputer Center of Tohoku University 12. Sequential Logic: Applications (Part II) 13. Organization of Computer Systems 14. Control Mechanism of Computer Systems 15. Final Examination</p>
授業時間外 学習	Review the class handouts before attending the class

授業時間外学習(E)	Review the class handouts before attending the class					
成績評価方法及び基準						
成績評価方法及び基準(E)	Students will be evaluated based on: class attendance, homework assignments, reports and the final exam.					
教科書および参考書	No	書名	著者名	出版社	出版年	ISBN/ISSN
	1.	『Computer Organization & Design: The Hardware/Software Interface』	David A Patterson and John L. Hennessy	Morgan Kaufmann	2013	978-0124077263
関連URL						
添付ファイル						
オフィスアワー						
オフィスアワー(E)						
連絡先(メールアドレス等) ※Emailは@の置き換えに注意 /Contact (Email, etc.)	クラスルームで連絡可能					
備考						
実務・実践的授業 / Practical business ※○は、実務・実践的授業であることを示す。 /Note: "○" Indicates the practical business						
その他						
更新日付	2024/03/27 10:31					

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.