Course Manager

Requisite

Master's Program in Computer Science

Common Subjects (Mandatory)

urse Numb	Course Name	授業方法	Credits	Standard Academic Year	Course Offering Term	Weekday and Period	Classroom	Instructor	Course Overview	Remarks
01CH001	Seminar in Computer Science	2	2.0	1	Annual	by request	3B302, 3B303, 3B402, 3B405	Faculty of the Dept. of CS	Students learn an overview of various research fields in computer science, and give presentation on their research topics.	Mandatory. Details will be posted on the Department website.
01CH002	Research in Computer Science I	3	4.0	1	Annual	by request	3B302, 3B303, 3B402, 3B405	Faculty of the Dept. of CS	Under supervision of academic advisers, students acquire basic knowledge and study specific topics in computer science. They also participate in discussions held in laboratory seminars.	Mandatory
01CH003	Research in Computer Science II	3	6.0	2	Annual	by request	3B302, 3B303, 3B402, 3B405	Faculty of the Dept. of CS	Under supervision of their academic advisers, students choose research topics in computer science, and study on their own topics. They also participate in the discussions held in laboratory seminars.	Mandatory. Only for students who have got the credit of "Research in Computer Science I" (01CH002).

Common Subjects (Basic Courses)

urse Numb	Course Name	授業方法	Credits	Standard Academic Year	Course Offering Term	Weekday and Period	Classroom	Instructor	Course Overview	Remarks
01CH731	Internship I	3	1.0	1, 2	Annual	by request		Shinichi Yamagiwa, Kazuhiro Shouno, Yoshiki Yamaguchi, Yukino Baba, Yasuhiro Hayase	Students visit industries or research institutes and learn information technologies and skills which are exploited in the business environment as well as obtain useful information to decide his/her future career through the valuable work experience.	
01CH732	Internship II	3	1.0	1, 2	Annual	by request		Shinichi Yamagiwa, Kazuhiro Shouno, Yoshiki Yamaguchi, Yukino Baba, Yasuhiro Hayase	Students visit industries or research institutes and learn information technologies and skills which are exploited in the business environment as well as obtain useful information to decide his/her future career through the valuable work experience.	「インターンシップI」(01CH731)を履修したものに限る。
01CH738	Data Analysis	1	2.0	1, 2	FallAB	Thu5,6	3B405	Taizo Suzuki, Yukino Baba, Sho Tsugawa	Major data analysis techniques from the basic to the state-of-the-art, used for evaluation of research results will be discussed. Accompanies exercises using the R language.	Identical to 01CF115 and 02RE705.
01CH740	Experiment Design in Computer Sciences	1	2.0	1, 2	SprAB	Fri5,6	3B301	Tetsuya Sakurai, Aranha, Claus	In this course we will study how to design and perform scientific experiments in the context of Computer Science research, with the goal of producing sound Scientific results. Topics include techniques for parameter and experiment selection, and statistical methods for analysis of results.	Students who took the credits of the course "Topics in Computational Science II" (01CH752) in 2013 or before cannot take this course. Lectures are conducted in English.
01CH747	Special Lecture on Social Innovation by ICT	1	2.0	1, 2	FallAB	Thu5,6	3B311	Kazuo MISUE et al.	This class aims to foster human resources that cause social innovation by using ICT. Lecturers invited from industry gives talk about cases of innovation in various fields. Some group works are mixed into lectures. Through the group works, a creative process for innovation is learned.	定員約30名。 CDP
01CH807	Instructional Design	5	1.0	1, 2	SprB	Intensive		Koji Hasebe, Keisuke Kameyama, Syouichi Komaya	専門分野の専門家として必ず必要となる,専門知識を人に伝えていくテクニックの体得を目的とし,教授法,プレゼンテーションに関する講義演習を行う.	CDP

Common Subjects (Advanced Courses)

urse Numb	Course Name	授業方法	Credits	Standard Academic Year	Course Offering Term	Weekday and Period	Classroom	Instructor	Course Overview	Remarks
urse Numb	Course Name	授業方法	Credits	Standard Academic Year	Course Offering Term	Weekday and Period	Classroom	Instructor	Course Overview	Remarks
01CH746	Services and Data Privacy	1	1.0	1, 2	SprC	Intensive		Jun Sakuma,Ryousuke Suzuki,Akiko Orita,Kouki Hamada	ビッグデータが提供しうる新しい社会のデザインについて学ぶとともに,データプライバシーの様々な問題とその対処を,技術,社会,法律,経済の観点から俯瞰する.	2014年度まで開講された「コンピュータサイエンス特別講義VIII」(01CH711)の単位を修得した者の履修は認めない。春C に開講。詳細は掲示を参照のこと。 Identical to 01CF209.
01CH749	Practical development for Embedded and IoT systems	4	2.0	1, 2	SprAB	Tue5,6	3B311	Shinichi Yamagiwa	This class will teach the practical overview of the advanced functions equipped in mobile devicess, the conventional IT infrastructure and embedded systems. The attendees of this class will learn the skills to develop combined systems that connect these functions and the infrastructures. And also they will master the productive ability for approaching innovative solutions, proposals and implementation skills.	This course limits the number of attendees due to the limited number of rentable resources for the practical develoment. The attendees must register themselves to this class before the first lecture. Additionaly, they must have the rental resources when the first lecture begins. The information will be announced before the lecture.
01CH750	Advanced Course in Cyber Risk	1	1.0	1, 2	Sum Vac	Intensive		Takao Ohkubo	Understanding general software development method and typical potential vulnerabilities in Web or mobile applications. Thus, Obtaining deeper knowledge for secure software development methods for avoiding vulnerabilities by lecture and practice.	教室:3C113(情報科学類計算機室) Identical to 01CF206.
01CH756	Corporate Information Security Management	1	1.0	1, 2	FallB	Wed5,6	3B301	Masayuki Orimo	To keep organization's information assets secure, it is required a systematic approach for managing people, processes and IT systems. It is information security management. This class teaches a basic concept of this information security management, and practical ways of thinking and approach to achieve this. Actual activities in a corporation are also shown as a case.	
01CH757	Frontier Informatics A	4	1.0	1, 2	Spring Semester	Intensive		Toshiyuki Amagasa	理工学の問題領域における情報学的アプローチに基づく問題解決について、特にデータの取り扱いやデータマイニング、機械学習等の応用に焦点をあて、講義と実習を織り織り交ぜながら学習する。本講義では、宇宙物理情報学、物性情報学について学ぶ。	
01CH758	Frontier Informatics B	4	1.0	1, 2	Fall Semester	Intensive		Toshiyuki Amagasa	理工学の問題領域における情報学的アプローチに基づく問題解決について、特にデータの取り扱いやデータマイニング、機械学習等の応用に焦点をあて、講義と実習を織り織り交ぜながら学習する。本講義では、バイオ情報学、気象情報学特論について学ぶ。	

Information Mathematics and Modeling

urse Numb	Course Name	授業方法	Credits	Standard Academic Year	Course Offering Term	Weekday and Period	Classroom	Instructor	Course Overview	Remarks
01CH101	Advanced Nonlinear Systems	1	2.0	1, 2	FallAB	Fri5,6	3B301	Ryuji Tokunaga	物理,化学,生体及び数理系にみられるカオス,分岐等の非線形現象を紹介し,反応拡散等の非線形性の発生機構とそれらの解析手法を力学周辺理論と計算科学の側面から講義する.	Open in an even number year.

urse Numb	Course Name	授業方法	Credits	Standard Academic Year	Course Offering Term	Weekday and Period	Classroom	Instructor	Course Overview	Remarks
01CH102	Multimedia Information Theory	1	2.0	1, 2	SprAB	Tue3,4	3B303	Kazuki Katagishi	This course provides Fluency Information Theory-based modern information theory as post Shannon, which is available on the New Generation Network as one of ICT (Information and Communication Technology) core technologies.	「現代情報理論とネットワーク」との重複履修不可 Identical to 01CF202.
01CH103	Advanced Course in Computational Algorithms	4	2.0	1, 2					Lectures are held on the various types of modeling and algorithms that occur in scientific computing, with a particular focus on large-scale linear calculations.	Open in an odd number year. Identical to 02RA215 and 02RE707. Lectures are conducted in English.
01CH104	Advanced Course in Computational Media Information Science	4	2.0	1, 2					解析的・数理的手法を用いて数理情報,自然科学,情報工学分野における諸問題の定式化・モデリングを行い,そのコンピュータ上での近似的な解の構成法を学ぶことを目的とする.	Open in an odd number year.
01CH105	Special Lecture on Numerical Simulation	1	2.0	1, 2	SprAB	Thu5,6	3B406	Dongsheng Cai	Solutions are performed for simulation problems that occur in engineering, chemistry, medicine, and economics. Specific content includes finite-difference, relaxation, and entropy-maximization methods, fractals, physical phenomena modeling with artificial life, and chaos theory and applications.	Lectures are conducted in English.
01CH107	Basic Computational Biology	1	2.0	1	FallAB	Thu1,2	3B301	Tetsuya Sakurai,Yuji Inagaki,Mitsuo Shoji,Shoji Makino,Mitsuhisa Sato,Keiichi Morikuni	In this lecture, the students will learn 1) basic methods to solve a wide variety of problems by using a program in the field of biology and 2) molecular phylogenetic analysis molecular dynamics method, modelization and algorithm of a phenomenon, high-performance computation (HPC), and component analysis.	2012-2014年度に02RA210の単位を修得したものは履修不可。 Identical to 02RA210 and 02RE711. Lectures are conducted in English.
01CH108	Systems and Control	1	1.0	1, 2	SprB	Tue3,4	3B311	Tohru Kawabe,Ikkyu Aihara	Lectures are given about the analysis and control system design method of a system with the uncertainty, as well as lectures on dynamical analysis using mathematical modeling of life phenomenon.	2012年度までに開設された「システム制御」(01CH106,01CJ207)の単位を修得したものの履修は認めない.
01CH109	Systems and Optimization	1	1.0	1, 2	SprA	Tue3,4	3B311	Takahito Kuno,Yoshio Sano	Lectures are given about the various optimization theories for the system design and management.	2012年度までに開設された「システム制御」(01CH106, 01CJ207)の単位を修得したものの履修は認めない。

Intelligent Software

urse Numb	Course Name	授業方法	Credits	Standard Academic Year	Course Offering Term	Weekday and Period	Classroom	Instructor	Course Overview	Remarks
01CH205	Intelligent Sensory Information Processing	2	2.0	1, 2	SprAB	Tue3,4	3A410	Akihisa Ohya	Recent results in robotics research field on intelligent activities related with sensor information processing and Kansei will be presented. Also, the answer to the question "What is intelligence?" will be explored by group discussions through watching intelligent actions appearing on a simple robot model when the sensor and the information processing are made complicated.	
01CH206	Advanced Course on Information Security	1	2.0	1, 2	SprAB	Mon1,2	3Z0110	Takashi Nishide	We learn the fundamental techniques for realizing information security with the focus on cryptography and its related mathematics. We review the basics of algebra and number theory and study how the cryptographic primitives such as public key encryption, key agreement, and authentication work and why they are secure.	Identical to 01CF207.

urse Numb	Course Name	授業方法	Credits	Standard Academic Year	Course Offering Term	Weekday and Period	Classroom	Instructor	Course Overview	Remarks
01CH213	Advanced Course in Program Theory	4	1.0	1, 2	FallA	Fri5,6	3B302	Tetsuya Mizutani,Yukiyoshi Kameyama	Students will learn theoretical foundations of computer programming through the topics on verification of procedural programs based on Hoare logic, and specification and verification of real-time programming systems.	2014年度までに開講された「ソフトウェア論理」(01CH201)の単位を修得した者の履修は認めない。
01CH215	Principles of Software Engineering	1	2.0	1, 2	SprAB	Wed3,4	3A410	Simona Mirela Vasilache,Shin Takahashi	The goal of this course is to introduce basic software engineering principles. The students will learn about the necessity of software engineering as a modern engineering discipline; they will study various software development models, and focus on some of the major phases in the software development life cycle. Project planning and management, business aspects of software engineering, along with some of the basic tools used by software engineers during the development of large applications, will also be introduced.	Lectures are conducted in English.
01CH216	Special Topics in Computer Human Interaction I	1	1.0	1, 2					Discuss recent topics and future trends in Computer Human Interaction. The lecture covers the topics of fundamental technology and applications.	2017年度までに開設された「ヒューマンインターフェース特論I」(01CH209および01CJ212)の単位を修得したものの履修は認めない。 Open in an odd number year.
01CH217	Special Topics in Computer Human Interaction II	1	1.0	1, 2	FallAB	Fri2	3B401	Shin Takahashi	This class is aimed at developing the ability to design interactive systems from the viewpoints of their users. Through lectures and group works, students acquire knowledge and skills required to design their human interfaces.	Those who already took "Special Topics in Computer Human Interaction II" (01CH210 or 01CJ213) cannot take this cource. Max 30 students. Open in an even number year.
01CH218	Advanced Course in Programming Languages	4	1.0	1, 2	SprAB	Tue2	3B302	Yukiyoshi Kameyama,Hiroshi Unno	Students study recent developments of programming language research based on functional programming and type theory, by choosing two or three topics in theory, system, and applications. Prerequisite of this course: experience in at least one of functional programming languages such as ML (OCaml, SML), Haskell, and Lisp (including Scheme).	2014年度までに開講された「ソフトウェア論理」(01CH201)の単位を修得した者の履修は認めない。
01CH219	Advanced Course on Cryptography	1	2.0	1, 2	SprAB	Mon1,2	3Z0110	Takashi Nishide	We learn the fundamental techniques for cryptography and its related mathematics. We review the basics of algebra and number theory and study how the cryptographic primitives such as public key encryption, key agreement, and authentication work and why they are secure.	If you already obtained the course credit for Advanced Course on Information Security (01CF207, 01CH206), you cannot take this course. Identical to 01CF212.

Software System

urse Numb	Course Name	授業方法	Credits	Standard Academic Year	Course Offering Term	Weekday and Period	Classroom	Instructor	Course Overview	Remarks
01CH301	Programming Environment	1	2.0	1, 2	FallAB	Thu5,6	3B301	Osamu Tatebe,Mitsuhisa Sato	Discussion of cutting-edge programming language processing systems and environments for software development enabling achievement of parallel programming, object-oriented programming, and other advanced information processing systems.	Identical to 02RE717. Lectures are conducted in English.

urse Numb	Course Name	授業方法	Credits	Standard Academic Year	Course Offering Term	Weekday and Period	Classroom	Instructor	Course Overview	Remarks
01CH303	Concurrent Systems	1	2.0	1, 2					This class introduces concurrent systems and discusses software techniques for building concurrent and distributed applications. Students must write programs using multithreading, communication libraries, and distributed shared spaces.	Open in an odd number year.
01CH304	Data Engineering I	1	2.0	1, 2	FallAB	Mon3,4	3Z0110	Hiroyuki Kitagawa,Toshiyuki Amagasa,Hiroaki Shiokawa	Discussion of cutting-edge data engineering technology for large-scale data centering on data mining. Begins with a survey of database technology and information search technology, which comprise the foundation, and then proceeds to topics on the main techniques of data mining.	Identical to 02RE703. Lectures are conducted in English.
01CH305	Data Engineering II	1	2.0	1, 2	FallAB	Fri3,4	3B302	Hiroyuki Kitagawa,Hanxiong Chen,Kazutaka Furuse	In this course, we discuss techniques for supporting information retrieval, and techniques for mining and acquiring knowledge from various types of information sources. Topics of this course include introduction to basic techniques, techniques for supporting information retrieval, link analysis, web mining, and their related topics.	Open in an even number year. Identical to 02RE704.
01CH306	Advanced Course in Distributed Systems	1	2.0	1, 2	SprAB	Mon5,6	3B302	Kazuhiko Kato,Yoshihiro Oyama,Hirotake Abe	This course explains basic concepts, design principles, and implementation techniques of distributed systems including LAN and Internet. It also discusses recent trend of cloud computing.	「分散情報システム工学」(02RB213)の単位を修得した者の履修は認めない。 Open in an even number year.
01CH307	Advanced System Programming	1	2.0	1, 2	FallAB	Mon5,6	3B302	Atusi Maeda,Osamu Tatebe	Learn about system programming, basis of design and development of computer systems, through lecture and exercise based on concrete examples.	Identical to 02RE718.
01CH308	Techniques for Mining Software Repositories	1	1.0	1, 2	SprC	Intensive		Yasuhiro Hayase	ソフトウェア開発に関する記録が保存されたデータベースであるソフトウェアリポジトリを活用し,ソフトウェア開発に役立てる方法を学ぶ.まず,代表的なソフトウェアリポジトリとして,バージョン管理システムとバグ管理システムのデータ構造を学び,それらを用いた分析手法を演習を通して身につける.さらに, GitHub などのソフトウェア開発支援サービスの記録や,ユーザからの評価コメント,ソフトウェアのクラッシュレポートといった巨大なデータから知見を得る方法を紹介する.	教室から外部ウェブページが閲覧できるノートPCを持参すること。

Computer Architecture

urse Numb	Course Name	授業方法	Credits	Standard Academic Year	Course Offering Term	Weekday and Period	Classroom	Instructor	Course Overview	Remarks
01CH402	Advanced Parallel Processing Architecture	1	2.0	1, 2	FallAB	Mon3,4	3B302	Hiroshi Tomiyasu,Shuji Sannomiya	Advanced parallel processing architecture is discussed from the viewpoint of both system specification/verification and implementation. The issues of conventional parallel processing architectures are first clarified, and then the resolution of them is discussed. The future trend of parallel processing architecture is also mentioned.	Open in an even number year.
01CH404	Parallel and Distributed Systems	4	2.0	1, 2	FallAB	Tue1,2	3Z1001	Koichi Wada,Shinichi Yamagiwa	並列分散システムにおける情報の授受と共有について論じる.特にクラスタにおける効率よいメッセージ通信やデータ共有に関して,それを支えるアーキテクチャ技術,ネットワーク技術,ソフトウェア技術について解説する.	Open in an even number year.
01CH405	Integrated Systems Engineering	1	2.0	1, 2	SprAB	Tue5,6	3B301	Moritoshi Yasunaga,Kenji Kanazawa	VLSI technologies are discussed, focus being put on the "circuit technologies", "structural configurations", and "designing methodologies". Their future problems in terms of the large scale integration and current development examples are also discussed.	

urse Numb	Course Name	授業方法	Credits	Standard Academic Year	Course Offering Term	Weekday and Period	Classroom	Instructor	Course Overview	Remarks
01CH406	Advanced Course in High Performance Computing	1	2.0	1, 2	FallAB	Wed2,3	3Z0110	Taisuke Boku,Daisuke Takahashi	In this course, we lecture the overall technology and scientific value of high performance computing such as very large scale numerical computation on the level of hardware, system software, algorithm and applications. Especially, parallel processing technology and related issues to support today's high-end computing are discussed.	2012-2014年度に02RA220の単位を修得したものは履修不可。 Identical to 02RA220. Lectures are conducted in English.
01CH407	Advanced Computer Networks	1	2.0	1, 2	SprAB	Thu5,6	3B402	Shigetomo Kimura	The lecture shows system design issues and transmission methods for information networks. It also explains communication control techniques for protocols such as IP and TCP, which are typically used in the Internet.	
01CH408	Advanced Circuit Engineering	4	2.0	1, 2	SprAB	Mon3,4	3B301	Kazuhiro Shouno	This course introduces some topics of the analog filter design. We discuss (1) transfer function, (2) techniques for designing the transfer function from the desired frequency characteristics, (3) circuit design with specifications and (4) advantages and disadvantages of circuit realizations.	Open in an even number year.

Media Engineering

urse Numb	Course Name	授業方法	Credits	Standard Academic Year	Course Offering Term	Weekday and Period	Classroom	Instructor	Course Overview	Remarks
01CH503	Advanced Course in Computer Graphics	4	2.0	1, 2	SprAB	Thu1,2	3B302	Jun Mitani,Yoshihiro Kanamori,Yuki Endo	The theories and practices of computer graphics such as shape modeling, rendering, animation and image processing will be reviewed through concrete examples.	Open in an even number year. Identical to 02RB221.
01CH507	Advanced Course in Speech Media Engineering	1	1.0	1, 2	SprAB	Wed2	3B303	Shoji Makino,Takeshi Yamada	This lecture introduces fundamentals and applications for speech and acoustic media processing. Specific content includes sound source separation and speech recognition.	2014年度までに開講された「音声メディア工学特論」(01CH502)の単位を修得した者の履修は認めない。
01CH508	Advanced Course in Signal and Image Processing I	1	1.0	1, 2	SprA	Mon5,6	3A306	Hiroyuki Kudo	マルチメディアの基盤技術である画像・音声などのメディア情報の符号化(圧縮)と呼ばれる分野について解説する。	2012年度まで開講された「信号画像処理・医用イメージング特論」または2013-2014年度に開講された「信号画像処理特論」(01CH501)の単位を修得した者の履修は認めない。 Identical to 02RE708.
01CH509	Advanced Course in Signal and Image Processing II	1	1.0	1, 2	SprB	Mon5,6	3A306	Taizo Suzuki	Some image processing applications of advanced filters, one of multimedia technologies, will be discussed.	2012年度まで開講された「信号画像処理・医用イメージング特論」または2013-2014年度に開講された「信号画像処理特論」(01CH501)の単位を修得した者の履修は認めない。 Identical to 02RE709.
01CH510	Advanced Course in Signal and Image Processing III	1	1.0	1, 2	SprC	Mon5,6	3A306	Hotaka Takizawa	マルチメディアにおける信号画像処理,医用イメージングや計算機診断支援などのトピックスに関して,年度に応じて適当なものを取り上げて解説する.	2012年度まで開講された「信号画像処理・医用イメージング特論」または2013-2014年度に開講された「信号画像処理特論」(01CH501)の単位を修得した者の履修は認めない。 Identical to 02RE710.

urse Numb	Course Name	授業方法	Credits	Standard Academic Year	Course Offering Term	Weekday and Period	Classroom	Instructor	Course Overview	Remarks
01CH609	Adaptive Media Processing	1	1.0	1, 2	SprAB	Mon2	3B303	Keisuke Kameyama	Adaptive techniques in processing, recognition and retrieval of media information will be discussed. (Lecture in English).	Identical to 01CF114. Lectures are conducted in English.

Intelligent Systems

urse Numb	Course Name	授業方法	Credits	Standard Academic Year	Course Offering Term	Weekday and Period	Classroom	Instructor	Course Overview	Remarks
01CH603	Advanced Course in Statistical Language Modeling	1	2.0	1, 2					This course will introduce students to several modern techniques for the computer systems that can process natural human language such as Japanese. We will focus on the methods based on statistical language modeling and large corpora (text data).	2015年度まで開講された「自然言語処理特論」(01CH603)の単位を修得した者の履修は認めない。 Open in an odd number year.
01CH605	Image Recognition and Understanding	4	2.0	1, 2					This course will introduce students to the basic theory and applications of image recognition and understanding, showing specific examples of face recognition, human motion analysis and so on. In particular, their mathematical aspects will be emphasized in the course.	Open in an odd number year.
01CH607	Computational Vision Science	1	1.0	1, 2	SprAB	Thu3	3B302	Ko Sakai	The course is an introduction to the human vision, with specific interests on the computational mechanisms of the visual cortex. The course will cover elementary physiology and psychology, as well as computational algorithms.	Identical to 02RB235 and 02RE706.
01CH608	Advanced Evolutionary Computation	1	2.0	1, 2	SprAB	Fri3,4	3A402	Hitoshi Kanoh	Problem solving methods such as genetic algorithms, artificial life and particle swarm optimizations are explained.These are discussed from a practical point of view.	
01CH611	Advanced Course in Computational Linguistics	1	2.0	1, 2	FallAB	Tue5,6	3B303	Takashi Inui	Natural Language Processing with linguistic perspectives will be discussed. Language resources such as corpus and machine readable dictionaries will also be introduced.	Open in an even number year.

Project Practice

urse Numb	Course Name	授業方法	Credits	Standard Academic Year	Course Offering Term	Weekday and Period	Classroom	Instructor	Course Overview	Remarks
01CH811	Project Practice Workshop	3	2.0	1, 2	SprC	Intensive		Kazuo Misue,Yasuhiro Hayase	The aim of this project is to give the students an opportunity to learn Research-and-Development skills and demonstrate the achievement of individual and independent works close to the realistic work situation.	
01CH812	Initiative Project I	3	2.0	1	FallAB	by request		Kazuo Misue,Yasuhiro Hayase	The aim of this project is to give the students an opportunity to learn Research-and-Development skills and demonstrate the achievement of individual and independent works close to the realistic work situation.	This course is offered only to those who register for "Project Practice Workshop" (01CH811).
01CH813	Initiative Project II	3	2.0	2	FallAB	by request		Kazuo Misue,Yasuhiro Hayase	The aim of this project is to give the students an opportunity to learn Research-and-Development skills and demonstrate the achievement of individual and independent works close to the realistic work situation.	This course is offered only to those who already have the credit of "Initiative Project I" (01CH812).

Special Lectures on Selected Topics

urse Numb	Course Name	授業方法	Credits	Standard Academic Year	Course Offering Term	Weekday and Period	Classroom	Instructor	Course Overview	Remarks

urse Numb	Course Name	授業方法	Credits	Standard Academic Year	Course Offering Term	Weekday and Period	Classroom	Instructor	Course Overview	Remarks
01CH714	Topics in Computer Science XI	1	1.0	1, 2	SprAB	Fri2	3B405	Mitsuru Ikei,Kenichiro Anjo,Hirotake Abe	一般に幅広く用いられているx86のアーキテクチャとそれがソフトウェアに与える影響、ソフトエア開発ツールを利用したソフトウェア最適化手法、並列処理の概念と手法の理解を目的とした講義を行う。	
01CH751	Topics in Computational Science I	1	1.0	1, 2	SprC	Intensive		Aranha, Claus	Lectures will be given on recent major problems and challenges in the field of computational science.	Students who took the course "Topics in Computational Science I" (01CH751) cannot take this course. Lectures are conducted in English.