	Computing Knowledge Areas	English Language Knowledge Areas	Liberal Arts Knowledge Areas	Fundational and Professional Knowledge	Disposition

Code	Field	Key	Title (En)	Title (Ja)	Statement (En)	Statement (Ja)	Values

AL-Algorithms and Complexity

C-AL-001	AL	A			Present to a group of peers the data characteristics of conditions or assumptions that can lead to different behaviors of specific algorithms and from the analysis, illustrate empirical studies to validate hypotheses about runtime measures.		1 ... B-II ... B-III ... B-III
C-AL-002-1	AL	B	Estimating Computational Complexity		Illustrate informally the time and space complexity of algorithms and use big-O notation formally to show asymptotic upper bounds and expected case bounds on time and space complexity, respectively.		2 ... B-II ... B-II ... B-II ... B-II ... B-II
C-AL-002-2	AL	B			Illustrate informally the time and space complexity of algorithms and use big-O notation formally to show asymptotic upper bounds and expected case bounds on time and space complexity, respectively.		1 ... B-II ... B-III
C-AL-003-1	AL	C			Illustrate informally the time and space complexity of algorithms and use big-O notation formally to show asymptotic upper bounds and expected case bounds on time and space complexity, respectively.		1 ... B-II ... B-II ... B-III
C-AL-003-2	AL	C			Illustrate informally the time and space complexity of algorithms and use big-O notation formally to show asymptotic upper bounds and expected case bounds on time and space complexity, respectively.		1 ... B-II ... B-III
C-AL-004-1	AL	D			Use recurrence relations to determine the time complexity of recursively defined algorithms by solving elementary recurrence relations and present the results to a group of scholars.		1 ... B-III ... B-III ... B-III
C-AL-004-3	AL	D			Use recurrence relations to determine the time complexity of recursively defined algorithms by solving elementary recurrence relations and present the results to a group of scholars.		1 ... B-III B-II B-I ... B-III B-III ... B-II B-III
C-AL-004-4	AL	D			Use recurrence relations to determine the time complexity of recursively defined algorithms by solving elementary recurrence relations and present the results to a group of scholars.		1 ... B-III B-III B-II ... B-III B-III ... B-III B-III
C-AL-004-2	AL	D			Use recurrence relations to determine the time complexity of recursively defined algorithms by solving elementary recurrence relations and present the results to a group of scholars.		1 ... B-II ... B-II B-II ... B-II ... B-II
C-AL-005-1	AL	E	Choice of an Appropriate Algorithm		Determine an appropriate algorithmic approach to an industry problem and use appropriate techniques (e.g., greedy approach, divide-and-conquer algorithm, recursive backtracking, dynamic programming, or heuristic approach) that considers the tradeoffs between the brute force to solve a problem.		3 ... B-III B-II ... B-III ... B-III
C-AL-005-4	AL	E			Determine an appropriate algorithmic approach to an industry problem and use appropriate techniques (e.g., greedy approach, divide-and-conquer algorithm, recursive backtracking, dynamic programming, or heuristic approach) that considers the tradeoffs between the brute force to solve a problem.		1 ... B-III B-II ... B-III ... B-II B-III
C-AL-005-5	AL	E			Determine an appropriate algorithmic approach to an industry problem and use appropriate techniques (e.g., greedy approach, divide-and-conquer algorithm, recursive backtracking, dynamic programming, or heuristic approach) that considers the tradeoffs between the brute force to solve a problem.		1 ... B-III B-III B-II ... B-III ... B-III B-III
C-AL-005-2	AL	E			Determine an appropriate algorithmic approach to an industry problem and use appropriate techniques (e.g., greedy approach, divide-and-conquer algorithm, recursive backtracking, dynamic programming, or heuristic approach) that considers the tradeoffs between the brute force to solve a problem.		1 ... B-III B-II B-II ... B-III ... B-III
C-AL-005-3	AL	E			Determine an appropriate algorithmic approach to an industry problem and use appropriate techniques (e.g., greedy approach, divide-and-conquer algorithm, recursive backtracking, dynamic programming, or heuristic approach) that considers the tradeoffs between the brute force to solve a problem.		0 ... B-II ... B-II B-III ... B-II ... B-II
C-AL-010	AL	J			Understand the mathematical background on data visualization, and determine an appropriate algorithmic approach to engineering, scientific, and social problems and provide insights into the problems solving through data visualization.		1 B-V ... B-II B-II ... B-III B-III ... B-III
C-AL-006-1	AL	F			Implement basic numerical algorithm methods (e.g., search algorithms common quadratic and O(N log N) sorting algorithms, fundamental graph algorithms, string-matching algorithm) to solve an industry problem and select the appreciate algorithm for a particular context.		2 ... B-IV B-III B-II ... B-III ... B-III
C-AL-006-2	AL	F			Implement basic numerical algorithm methods (e.g., search algorithms common quadratic and O(N log N) sorting algorithms, fundamental graph algorithms, string-matching algorithm) to solve an industry problem and select the appreciate algorithm for a particular context.		1 ... B-IV B-III B-II ... B-II ... B-III ... B-III
C-AL-007	AL	G			Design a deterministic finite state machine for a local engineering firm that accepts a specified language and generates a regular expression to represent the language.		1 ... B-III B-III B-III ... B-III B-III ... B-III
C-AL-008	AL	H	Fundamentals of Mathematical Modeling		Understand what kind of computational methods can be applied to solve problems in fundamental concepts of mathematics and physics, e.g. calculus, algebra, probability statistics, differential equations.		1 ... B-II ... B-II B-III ... B-II ... B-II
C-AL-009	AL	I			Demonstrate how to write computer programs to solve problems in fundamental concepts of mathematics and physics and understand practical computational efficiency.		0 ... B-II ... B-II B-III ... B-II ... B-II

AR-Architecture and Organization

C-AR-001	AR	A	Use of CAD tools for logic designs	論理設計のためのCADツールの利用	Using CAD tools to design and simulate combinational and sequential circuits.	組み合わせ回路や順序回路を設計、およびシミュレーションするためのCADツールの利用	1 ... B-II B-II ... B-II B-II
C-AR-002	AR	B			Evaluate the timing diagram behavior of a simple processor-implemented at the logic circuit level and develop a report expressing the findings.		1 ... B-II B-II ... B-II B-II
C-AR-003	AR	C			Write a simple program at the assembly/machine level for string processing and manipulation and for converting numerical data into hexadecimal form.		2 ... B-II ... B-II ... B-II
C-AR-004	AR	D			Implement a fundamental high-level construct in both machine and assembly languages and present the results to a group of peers.		2 ... B-II ... B-II ... B-II
C-AR-005	AR	E			Calculate the average memory access time under a variety of cache and memory configurations and develop a short report of the findings.		2 ... B-II ... B-II ... B-II
C-AR-006	AR	F	Electronics		Design electric and electronic circuits using passive and active devices and measure their performances.		2 ... B-II B-II ... B-II B-II B-II ... B-II B-II
C-AR-007	AR	G	Design and evaluate digital LSI circuits	デジタルLSI回路の設計と評価	Understand how to determine the LSI circuit performance such as the speed and the power consumption. And design, evaluate, and verify LSI circuits by applying LSI design flow from logic synthesis to layout design in CAD tools.	速度や消費電力のようなLSIの回路性能がどのように決まるのかを理解する。またCADツールを用いた論理合成からレイアウト設計までのLSIの設計フローに従い、LSI回路の設計、評価、検証を行う。	2 ... B-II B-II ... B-II
C-AR-008	AR	H	Computations in Floating-Point Number Format		Understand how floating-point type format can be designed, and know its advantages and disadvantages. Demonstrate how typical computational errors occur and propagate, and how they can be avoided.		1 ... B-I ... B-III B-II ... B-II B-II ... B-II B-II
C-AR-009	AR	I	Modeling of digital circuits by Verilog Hardware Description Language	Verilogハードウェア記述言語によるデジタル回路のモデリング	Understanding syntax and semantics of Verilog Hardware Description Language (HDL). Modeling simple combinational circuits, flip-flops, and sequential circuits using Verilog HDL to design a simple processor.	Verilogハードウェア記述言語の構文や意味論の理解。簡単なプロセッサーを設計するためにVerilog HDL記述言語を使った。簡単な組み合わせ回路、フリップフロップ、順序回路のモデリング。	2 ... B-II B-II ... B-II B-II
C-AR-010	AR	J	Synthesis of digital circuits from Verilog Hardware Description Language Models	Verilogハードウェア記述言語モデルからのデジタル回路の合成	Using CAD tools to synthesize, simulate, and evaluate digital circuits from Verilog HDL models.	Verilogハードウェア記述言語モデルからデジタル回路を合成、シミュレーション、評価するためのCADの利用	2 ... B-II B-II ... B-II B-II

Code	Field	Key	Title (En)	Title (Ja)	Statement (En)	Statement (Ja)
C-AR-011	AR	K	Two-level logic design and optimization	二段論理設計と最適化	Model a counter using Verilog HDL and synthesize the Verilog HDL model to generate the logic circuit of the counter. Implement the synthesized logic circuit on a Field Programmable Gate Array (FPGA) on an evaluation board with the design of a 7 segment LED controller.	
C-AR-012	AR	L	Two-level logic design and optimization	二段論理設計と最適化	Generation of two-level logic functions from given truth tables. Optimization of the two-level logic functions using Karnaught maps.	与えられた真理値表からの二段論理関数の生成。カルノーマップを使用した二段論理関数の最適化。
C-AR-013	AR	M	Peformance analysis and optimization for logic circuits	論理回路に対する性能解析と最適化	Understanding gate delays on logic circuits. Performance analysis for logic circuits using the delays. Performance optimization of logic circuits considering the worst-case delay.	論理回路におけるゲート遅延の理解。遅延を用いた論理回路の性能評価。最悪遅延を考慮した論理回路の性能最適化。
C-AR-014	AR	N	Sequential circuit designs	順序回路設計	Designing finite state machines (FSMs) for sequential circuits. Design sequential circuits from the designed FSMs.	順序回路のための有限状態機械の設計。設計した有限状態機械からの順序回路設計。
C-AR-015	AR	O			Understand the features and functions of typical components of computer systems, as well as configure them and understand system configuration with good performance according to the characteristics of the system.	
C-AR-018	AR	R			Understand the behavior of semiconductor devices such as intrinsic semiconductor, extrinsic semiconductor, MOS transistors, CMOS circuits, and semiconductor photodevices.	
C-AR-016	AR	P			Understand differences between Real-Time OS (RTOS) and high-performance OS (Windows, Macos, Linux, etc.), and understand various functions of RTOS (semaphores, task management, etc)	
C-AR-019	AR	S			Use an Electronic Design Automation (EDA) tool to design the interconnects to peripheral modules.	
C-AR-017	AR	Q			Understand the characteristics of task design methods and typical scheduling algorithms in embedded systems, and learn the basics of embedded system design.	
	CN-Computational Science					
C-CN-001-1	CN	A			Create a simple, formal mathematical model of a real-world situation and use that model in a simulation for a local technology company.	
C-CN-001-2	CN	A			Create a simple, formal mathematical model of a real-world situation and use that model in a simulation for a local technology company.	
C-CN-002	CN	B	Understanding Application of Computers	コンピュータの応用の理解	Understand computer theory.	コンピュータの理論について理解する。
	DS-Discrete Structures					
C-DS-001-1	DS	A	set theory		Present to a peer group some practical examples of an appropriate set, function, or relation model, and interpret the associated operations and terminology in context.	適切な集合、関数、関係モデルの実用例を示し、関連する作用や用語を文脈に沿って解釈できる。
C-DS-001-2	DS	A			Present to a peer group some practical examples of an appropriate set, function, or relation model, and interpret the associated operations and terminology in context.	
C-DS-001-3	DS	A			Present to a peer group some practical examples of an appropriate set, function, or relation model, and interpret the associated operations and terminology in context.	
C-DS-002-1	DS	B	algebra		Use symbolic propositional and predicate logic to model a real-life industry application by applying formal methods (e.g., calculating the validity of formulae and computing normal forms to the symbolic logic).	現実の実社会への応用を文脈に、記号命題論理と述語論理を使用して、形式的手法（記号論理に対する数式の妥当性の計算や正規形の計算など）を適用できる。
C-DS-002-2	DS	B			Use symbolic propositional and predicate logic to model a real-life industry application by applying formal methods (e.g., calculating the validity of formulae and computing normal forms to the symbolic logic).	
C-DS-003	DS	C			Apply rules of inference to construct proofs and present results to a group of professionals, appropriate proofs, or logical reasoning to solve a strategic problem.	
C-DS-004	DS	D			Map real-world applications to appropriate counting formalisms and apply basic counting theories (e.g., counting arguments, the pigeonhole principle, modular arithmetic as well as compute permutations and combinations of a set) to solve an industry problem.	
C-DS-005	DS	E			Analyze an industry problem to determine underlying recurrence relations and present the solution to professionals by using a variety of basic recurrence relations.	
C-DS-006-1	DS	F			Model a real-world problem using appropriate graphing strategies (e.g., trees, traversal methods for graphs and trees, spanning trees of a graph) and determine whether two graph approaches are isomorphic.	
C-DS-006-2	DS	F			Model a real-world problem using appropriate graphing strategies (e.g., trees, traversal methods for graphs and trees, spanning trees of a graph) and determine whether two graph approaches are isomorphic.	
C-DS-007	DS	G	fundamental calculus		Calculate different probabilities of dependent or independent events and expectations of random variables to solve a problem and present to a group of peers the ways to compute the variance for a given probability distribution.	問題を解くために従属事象または独立事象の異なる確率と確率変数の期待値を計算し、与えられた確率分布に対する分散の計算方法を仲間に発表することができる。
	GV-Graphics and Visualization					
C-GV-001	GV	A			Design and develop a user interface using a standard API and that incorporates visual and audio techniques used for a local organization	
C-GV-002	GV	A			Design and develop a user interface using a standard API and that incorporates visual and audio techniques used for a local organization	
C-GV-003	GV	A			Design and develop a user interface using a standard API and that incorporates visual technique used for a local organization	
C-GV-004	GV	B	Rendering algorithms		Demonstrate understanding and the ability to implement common rendering algorithms	
C-GV-005	GV	C	Geometric modeling		Demonstrate understanding of the mathematics, data-structures and algorithms for modeling geometric objects by designing and implementing computer programs for creating, manipulating and processing geometric objects	
C-GV-006	GV	D	Graphics pipeline		Demonstrate understanding and ability to design and implement a full graphics pipeline	
C-GV-007	GV	E	Graphics API		Demonstrate the ability to design and implement graphics programs using a standard graphics library	
C-GV-008	GV	F	Understanding Application of Computers	コンピュータの応用の理解	Understand the generation of 3D graphics.	3次元グラフィックスの生成について理解する。
	HCI-Human-Computer Interaction					
C-HI-001	HCI	A			Design an interactive application, applying a user-centered design cycle with related tools and techniques (modes, navigation, visual design), to optimize usability and user experience within a corporate environment.	
C-HI-002	HCI	B			Analyze and evaluate a user interface that considers the context of use, stakeholder needs, state-of-the-art response interaction times, design modalities taking into consideration universal access, inclusiveness, assistive technologies, and culture-sensitive design.	
C-HI-003	HCI	C			Design and develop an interactive application for a local charity, applying a user-centered design cycle with related vocabulary, tools, and techniques that optimize usability and user experience.	
C-HI-004	HCI	D			Create and conduct a simple usability test to analyze and evaluate a user interface that considers the context of use taking into consideration universal access and culturally sensitive design.	
C-HI-005	HCI	E			Create a simple application, together with help and documentation, that supports a graphical user interface for an enterprise and conduct a quantitative evaluation and report the results.	

Computing Knowledge Areas	English Language Knowledge Areas	Liberal Arts Knowledge Areas	Fundational and Professional Knowledge	Disposition

Code	Field	Key	Title (En)	Title (Ja)	Statement (En)	Statement (Ja)
C-HI-006	HCI	F			In design and analysis, apply knowledge from related disciplines including human information processing, anthropology and ethnography, and ergonomics/human factors.	

IAS-Information Assurance and Security

Code	Field	Key	Title (En)	Title (Ja)	Statement (En)	Statement (Ja)
C-IA-001	IAS	A	Programming input validation		Write the correct input validation code for a cybersecurity company after classifying common input validation errors	
C-IA-002	IAS	B	Demonstrating race condition		Demonstrate to a group of security professionals some ways to prevent a race condition from occurring and ways to handle exceptions.	
C-IA-003	IAS	C	Vulnerability handling	脆弱性の処置	Present to a group of peers the software vulnerability that can be exploited by threats using the standardized naming and severity rating measures and find out about the solution by consulting different sources.	攻撃者が悪用する可能性のあるソフトウェアの脆弱性を、標準化された名称と深刻度評価の手段を用いて仲間内で紹介し、さまざまな情報源を参考にしながら解決策を見出すことができる。
C-IA-004	IAS	D	Authentication methods	認証方法	Present to a group of peers the authentication methods that can be used for user identification using different factors (i.e. knowledge, ownership, or inherence) and also illustrate informally the attack strategies to the authentication systems.	様々な要素（知識、所有、または身体特徴）を用いたユーザの認証方法を紹介し、さらに認証システムに対する攻撃戦略をおおまかに説明できる。
C-IA-005	IAS	E	Cyberattacks	サイバー攻撃	Present to a group of peers several types of cyberattack methods that affect the security of systems and also illustrate informally the effective countermeasures.	システムのセキュリティに影響を与えるサイバー攻撃の手法を複数種類挙げて、効果的な対策をおおまかに説明できる。
C-IA-006	IAS	F	Encryption for information confidentiality and integrity	情報の機密性および完全性を保つ総合	Choose an appropriate encryption algorithm to ensure the confidentiality and integrity of the information based on the level of security.	情報の機密性と完全性を確保するために、セキュリティレベルに応じて適切な暗号化アルゴリズムを選択できる。

IM-Information Management

Code	Field	Key	Title (En)	Title (Ja)	Statement (En)	Statement (Ja)
C-IM-001	IM	A			Contrast information with data and knowledge and describe to a group of professionals the advantages and disadvantages of centralized and decentralized data control.	
C-IM-002	IM	B			Demonstrate to a group of peers a declarative query language to elicit information from a database.	
C-IM-003	IM	C			Contrast, design and evaluate appropriate data models, including internal structures, for different types of data, and present an application to a group of professionals for the use of modeling concepts and notations of different relational and object-oriented models.	
C-IM-004	IM	D			Express how the growth of the internet and demands for information have changed data handling and transactional and analytical processing and led to the creation of special-purpose databases.	
C-IM-005	IM	E			Contrast data lifecycle phases and necessary techniques relevant to a particular phase.	
C-IM-006	IM	F			Apply metadata models, standards, and formats.	
C-IM-007	IM	G			Design and apply persistent data structure, work with existing approaches to data storage, sharing, versioning, and reuse.	

IS-Intelligent Systems

Code	Field	Key	Title (En)	Title (Ja)	Statement (En)	Statement (Ja)
C-IS-001	IS	A		課題の特性の判別	Determine the characteristics of a given problem that an intelligent system must solve and present the results to a project team.	プロジェクトチームに対して与えられた、知的システムが解き結果を提示しなければいけない課題の特性を判断する
C-IS-002-1	IS	B		制約充足問題の理解と実装	Formulate an industry problem specified in a natural language (e.g., English) as a constraint satisfaction problem and implement it using an appropriate technique (e.g., chronological backtracking algorithm or stochastic local search).	自然言語で指定された、産業的な課題を制約充足問題として定義し、適切な手法で実装することが出来る
C-IS-002-2	IS	B			Formulate an industry problem specified in a natural language (e.g., English) as a constraint satisfaction problem and implement it using an appropriate technique (e.g., chronological backtracking algorithm or stochastic local search).	
C-IS-003	IS	C			Implement an appropriate uninformed or informed search algorithm for an industry problem by characterizing time and space complexities of informed algorithm or designing the necessary heuristic evaluation function for an uninformed search algorithm to guarantee an optimal solution, respectively.	
C-IS-004-1	IS	D			Translate a natural language (e.g., English) sentence for a corporate query system into a predicate logic statement by converting a logic statement into clause form and applying resolution to a set of logic statements to answer a query.	
C-IS-004-2	IS	D			Translate a natural language (e.g., English) sentence for a corporate query system into a predicate logic statement by converting a logic statement into clause form and applying resolution to a set of logic statements to answer a query.	
C-IS-005-1	IS	E			Make a probabilistic inference in a real-world industry problem using Bayes' theorem to determine the probability of a hypothesis given evidence.	
C-IS-005-2	IS	E			Make a probabilistic inference in a real-world industry problem using Bayes' theorem to determine the probability of a hypothesis given evidence.	
C-IS-006	IS	F	Understanding Application of Computers	コンピュータの応用の理解	Understand the inference mechanisms in artificial intelligence.	人工知能における推論の仕組みについて理解する。

NC-Networking and Communication

Code	Field	Key	Title (En)	Title (Ja)	Statement (En)	Statement (Ja)
C-NC-001	NC	A	Socket programming		Design and develop for a corporate customer a simple client-server socket-based application.	
C-NC-002	NC	B	TCP/IP protocol		Design and implement a simple reliable protocol for an industry network by considering factors that affect the network's performance.	
C-NC-003	NC	C			Contrast fixed and dynamic allocation techniques as well as current approaches to congestion and present the results to company executives.	
C-NC-004	NC	D			Analyze and compare the characteristics of various communication protocols and how they support application requirements within a telecommunication system.	
C-NC-005	NC	E			Describe different network standards, components, and requirements of network protocols within a distributed computing setting.	
C-NC-006	NC	F			Describe the major components of a web system and how they function together, including the web server, database, analytics, and front end.	

OS-Operating Systems

Code	Field	Key	Title (En)	Title (Ja)	Statement (En)	Statement (Ja)
C-OS-001	OS	A			Apply knowledge of computing theory and mathematics to solve problems and present comprehensively the results and methods of the solution for either a professional or non-professional audience.	
C-OS-002	OS	B			Implement software solutions within system constraints of a target system considering its abilities and constraints, and document and explain the implementation to both technical and non-technical audiences	
C-OS-003	OS	C			Predict the behavior of systems under random events using knowledge of probability and expectation and inform users of its potential behavior.	
C-OS-004	OS	D			Assess the security of a system using the knowledge of confidentiality, availability, and integrity with an understanding of risks, threats, vulnerabilities, and attack vectors, and relate its societal and ethical impact to the system's constituents.	
C-OS-005	OS	E			Know how an Unix/Unix-like computer system works in a network environment.	
C-OS-006	OS	F	Understanding Computer Systems	コンピュータシステムの理解	Understand the components and data representation of computer systems. Understand the basic functions of an operating system.	コンピュータシステムの構成要素、データ表現を理解する。オペレーティングシステムの基本動作を理解する。

PBD-Platform-based Development

Code	Field	Key	Title (En)	Title (Ja)	Statement (En)	Statement (Ja)
C-PB-001	PBD	A			Design for a client a responsive web application utilizing a web framework and presentation technologies in support of a diverse online community.	

Top-level knowledge area groupings: **Computing Knowledge Areas** | **English Language Knowledge Areas** | **Liberal Arts Knowledge Areas** | **Fundational and Professional Knowledge** | **Disposition**

Code	Field	Key	Title (En)	Title (Ja)	Statement (En)	Statement (Ja)	Courses
C-PB-002	PBD	B			Develop a mobile app for a company that is usable, efficient, and secure on more than one device.		0
C-PB-003	PBD	C			Simulate for a company an industry platform.		0
C-PB-004	PBD	D			Develop and implement programming tasks via platform-specific APIs and present the results to a group of peers.		0
C-PB-005	PBD	E			Present the analysis of a mobile industrial system and illustrate correct security vulnerabilities.		0
C-PB-006	PBD	F	Use of a micro-computer board	マイクロコンピュータ基板の使用	Understanding how to use a micro-computer board, sensors, and actuators to implement a simple computer system.	簡単なコンピュータシステムを実現するために、どのようにマイクロコンピュータ基板、センサー、およびアクチュエータを使うかの理解	1
C-PB-007	PBD	G	Development of a computer system using a micro-computer board	マイクロコンピュータ基板を用いたコンピュータシステムの開発	Developing a computer system based on self idea using a micro-computer board, sensors, and actuators.	マイクロコンピュータ基板、センサー、およびアクチュエータを使って、自己のアイデアに基づいたコンピュータシステムを開発	1
C-PB-008	PBD	H			Implement and demonstrate various embedded systems, such as stopwatch and image processing, on an FPGA device		1

PD-Parallel and Distributed Computing

Code	Field	Key	Title (En)	Title (Ja)	Statement (En)	Statement (Ja)	Courses
C-PD-001	PD	A			Design a scalable parallel algorithm for a computer firm by applying task-based decomposition or data-parallel decomposition.		2
C-PD-002	PD	B			Write a program for a client that correctly terminates when all concurrent tasks terminate by considering actors and/or reactive processes, deadlocks, and properly synchronized queues.		2
C-PD-003	PD	C			Write a test program for a company that reveals a concurrent programming error (e.g., missing an update when two activities both try to increment a variable).		2
C-PD-004	PD	D			Present computational results of the work and span in a program by identifying independent tasks that may be parallelized and determining the critical path for a parallel execution diagram.		2
C-PD-005	PD	E			Implement a parallel divide-and-conquer (and/or graph algorithm) for a client by mapping and reducing operations for the real industry problem and empirically measure its performance relative to its sequential analog.		1

PL-Programming Languages

Code	Field	Key	Title (En)	Title (Ja)	Statement (En)	Statement (Ja)	Courses
C-PL-001	PL	A			Present the design and implementation of a class considering object-oriented encapsulation mechanisms (e.g., class hierarchies, interfaces, and private members).		2
C-PL-002	PL	B			Produce a brief report on the implementation of a basic algorithm considering control flow in a program using dynamic dispatch that avoids assigning to a mutable state (or considering reference equality) for two different languages.		0
C-PL-003	PL	C			Present the implementation of a useful function that takes and returns other functions considering variables and lexical scope in a program as well as functional encapsulation mechanisms.		2
C-PL-004	PL	D			Use iterators and other operations on aggregates (including operations that take functions as arguments) in two programming languages and present to a group of professionals some ways of selecting the most natural idioms for each language.		0
C-PL-005	PL	E			Contrast and present to peers (1) the procedural/functional approach (defining a function for each operation with the function body providing a case for each data variant) and (2) the object-oriented approach (defining a class for each data variant with the class definition providing a method for each operation).		3
C-PL-006	PL	F			Write event handlers for a web developer for use in reactive systems such as GUIs.		0
C-PL-007	PL	G			Demonstrate program pieces (such as functions, classes, methods) that use generic or compound types, including for collections to write programs.		2
C-PL-008	PL	H			Write a program for a client to process a representation of code that illustrates the incorporation of an interpreter, an expression optimizer, and a documentation generator.		0
C-PL-009	PL	I			Use type-error messages, memory leaks, and dangling-pointer to debug a program for an engineering firm.		0
C-PL-010	PL	J			Describe how the historical development of hardware and operating system computing platforms produced the computing systems we have today.		1
C-PL-011	PL	K			Produce a block diagram, including interconnections, of the main parts of a computer, and illustrate methods used on a computer for storing and retrieving data.		1
C-PL-012	PL	L	Understanding Computer Languages	コンピュータ言語の理解	Understand the concept of computer languages and their representation in several languages. Understand how computer languages are interpreted and translated into machine language.	コンピュータ言語の概念やいくつかの言語の表現を理解する。コンピュータ言語がどのように解釈され、機械語に変換されるかを理解する。	1

SDF-Software Development Fundamentals

Code	Field	Key	Title (En)	Title (Ja)	Statement (En)	Statement (Ja)	Courses
C-SD-001	SDF	A			Create an appropriate algorithm to illustrate iterative, recursive functions, as well as divide-and-conquer techniques and use a programming language to implement, test, and debug the algorithm for solving a simple industry problem.		0
C-SD-002	SDF	B			Decompose a program for a client that identifies the data components and behaviors of multiple abstract data types and implementing a coherent abstract data type, with loose coupling between components and behaviors.		1
C-SD-003	SDF	C			Design, implement, test, and debug an industry program that uses fundamental programming constructs including basic computation, simple and file I/O, standard conditional and iterative structures, the definition of functions, and parameter passing.		6
C-SD-004	SDF	D			Present the costs and benefits of dynamic and static data structure implementations, choosing the appropriate data structure for modeling a given engineering problem.		2
C-SD-005	SDF	E			Apply consistent documentation and program style standards for a software engineering company that contribute to the readability and maintainability of software, conducting a personal and small-team code review on program component using a provided checklist.		3
C-SD-006	SDF	F			Demonstrate common coding errors, constructing and debugging programs using the standard libraries available with a chosen programming language.		4
C-SD-007	SDF	G			Refactor an industry program by identifying opportunities to apply procedural abstraction.		0
C-SD-008	SDF	H			Know how to write, compile, and run simple programs with different languages		0
C-SD-009	SDF	I	Understanding Computer Languages	コンピュータ言語の理解	Understand the representation of data structures in computers, basic software development flow and diagrams required for software development.	データ構造のコンピュータ内での表現、基本的なソフトウェア開発の流れとソフトウェア開発に必要な図を理解する。	1

SE-Software Engineering

Code	Field	Key	Title (En)	Title (Ja)	Statement (En)	Statement (Ja)	Courses
C-SE-001	SE	A			Conduct a review of a set of software requirements for a local project, distinguishing between functional and non-functional requirements, and evaluate the extent to which the set exhibits the characteristics of good requirements.		7
C-SE-002	SE	B			Present to a client the design of a simple software system using a modeling notation (such as UML), including an explanation of how the design incorporated system design principles.		7

SF-Systems Fundamentals

Computing Knowledge Areas | English Language Knowledge Areas | Liberal Arts Knowledge Areas | Fundational and Professional Knowledge | Disposition

Code	Field	Key	Title (En)	Title (Ja)	Statement (En)	Statement (Ja)
C-SF-001	SF	A			Design a simple sequential problem and a parallel version of the same problem using fundamental building blocks of logic design and use appropriate tools to evaluate the design for a commercial organization and evaluate both problem versions.	
C-SF-002	SF	B			Develop a program for a local organization that incorporated error detection and recovery that incorporates appropriate tools for program tracing and debugging.	
C-SF-003	SF	C			Design a simple parallel program for a corporation that manages shared resources through synchronization primitives and use tools to evaluate program performance.	
C-SF-004	SF	D			Design and conduct a performance-oriented, pattern recognition experiment incorporating state machine descriptors and simple schedule algorithms for exploiting redundant information and data correction that is usable for a local engineering company and use appropriate tools to measure program performance.	
C-SF-005	SF	E			Calculate average memory access time and describe the tradeoffs in memory hierarchy performance in terms of capacity, miss/hit rate, and access time for a local engineering company.	
C-SF-006	SF	F			Measure the performance of two application instances running on separate virtual machines at a local engineering company and determine the effect of performance isolation.	

SP-Social Issues and Professional Practice

Code	Field	Key	Title (En)	Title (Ja)	Statement (En)	Statement (Ja)
C-SP-001	SP	A			Perform a system analysis for a local organization and present the results to them in a non-technical way.	
C-SP-002	SP	B			Integrate interdisciplinary knowledge to develop a program for a local organization.	
C-SP-003	SP	C			Document industry trends, innovations, and new technologies and produce a report to influence a targeted workspace	
C-SP-004	SP	D			Present to a group of professionals an innovative computer system by using audience-specific language and examples to illustrate the group's needs.	
C-SP-005	SP	E			Produce a document that is helpful to others that addresses the effect of societal change due to technology.	
C-SP-006	SP	F			Adopt processes to track customer requests, needs, and satisfaction.	
C-SP-007	SP	G			Compare different error detection and correction methods for their data overhead, implementation complexity, and relative execution time for encoding, detecting, and correcting errors and ensure that any error does not affect humans adversely.	
C-SP-008	SP	H	Computer Literacy	コンピュータリテラシー	Know how to operate UNIX/UNIX-like computer systems to create, print, and view documents, and to communicate with others via e-mail and other network media with care to security and ethics.	
C-SP-009	SP	I	Creativity and ethics	創造性と倫理観	Recognize the professional and ethical responsibilities as an engineer, and can set, solve, and evaluate technical problems in society.	技術者としての専門的・倫理的責任を自覚し、社会における技術的課題を設定・解決・評価することができる
C-SP-010	SP	J	Ability to self-learn	学習する能力	Respond to changes in social environment and technology, and learn spontaneously throughout life.	社会環境、技術等の変化に対応して、生涯にわたって自発的に学習することができる
C-SP-011-1	SP	K	Scientific thinking	科学的思考力	Apply knowledge in the fields of mathematics, natural science, and information technology, as well as scientific thinking skills such as logical thinking and objective judgment acquired through their acquisition, to problem solving.	数学・自然科学・情報技術分野の科目の知識と、それらの習得を通して身につけた論理的な思考力や客観的判断力などの科学的思考力を、問題解決に応用できる
C-SP-011-2	SP	K		論理的・科学的思考能力	problem solving.	科学的証拠に基づいて論理的かつ客観的に考察できる
C-SP-012	SP	L	Cross-cultural understanding	異文化理解	Percept human society from a global perspective and consider the coexistence of nature and human beings, and the happiness, health, and welfare of humankind.	人間社会を地球的な視点から多面的にとらえ、自然と人間との共生、人類の幸福・健康・福祉について考えることができる
C-SP-013-1	SP	M	Effective communication	豊かなコミュニケーション能力	Express one's own thoughts and judgments effectively both inside and outside the nation and to communicate them to others through written, oral, and information media.	文書、口頭、情報メディアなどを通じて、自らの思考・判断を国の内外において効果的に表現し、他者に伝えることができる
C-SP-013-2	SP	M	Effective communication	豊かなコミュニケーション能力	Express one's own thoughts and judgments effectively both inside and outside the nation and to communicate them to others through written, oral, and information media.	文書、口頭、情報メディアなどを通じて、自らの思考・判断を国の内外において効果的に表現し、他者に伝えることができる
C-SP-014	SP	N	Team working abilities	チームで働く能力	Determine the actions that should be taken by oneself and others in collaborative work, and to carry out and work on them.	他者との協働において、自立及び行動すべきすべて行動を判断し、実行・働きかけることができる
C-SP-015	SP	O		対話的思考能力		対話を通じて自分の考えを修正・発展させることができる
C-SP-016	SP	P		ふりかえり能力		学んだ知識から自らの考えをふり返り、意味づけ、価値づけていくことができる

MS-Mathematics and Sciences

Code	Field	Key	Title (En)	Title (Ja)	Statement (En)	Statement (Ja)
C-MS-001	MS	A			Understand the method to solve systems of linear equations	
C-MS-002	MS	B			Understand concepts to treat linear spaces (rank of linear map, determinant of linear transform, base and dimension of linear spaces, etc.)	
C-MS-003	MS	C			Understand eigenvalue, eigenvectors and diagonalization of square matrices	
C-MS-004	MS	D			Understand the theory of groups, rings and fields and apply them for operator theory	
C-MS-005	MS	E			Understand basic logics including first order predicate logic and resolution principles of logical formalization of natural number theory	
C-MS-006	MS	F			Understand topological invariants or characteristics of geometric objects(including homology group of objects)	
C-MS-007	MS	G			Understand derivative and integral of functions of one variable	
C-MS-008	MS	H			Understand expansion of functions, elementary functions,	
C-MS-009	MS	I			Understand derivative and integral of functions of multiple variables	
C-MS-010	MS	J			Understand limit of sequence of functions	
C-MS-011	MS	K			Understand Fourier series, Fourier integral, Laplace transform and discrete Fourier transform	
C-MS-012	MS	L			Understand holomorphic functions, complex integral, Cauchy's integral theorem, Tailor/Laurent series, etc.	
C-MS-013	MS	M			Understand mathematical definitions of error, mean, variance, correlation, estimation, etc.	
C-MS-014	MS	N			Understand law of large number, Gaussian distribution	
C-MS-015	MS	O			Understand equation of motion, momentum, work, energy, angular momentum and the law of gravity, etc.	
C-MS-016	MS	P			Understand electric field, magnetic field, Ampere's law and electromagnetic induction,	
C-MS-017	MS	Q			Understand Maxwell's equations, and electromagnetic wave.	
C-MS-018	MS	R			Understand wave-particle duality of microscopic objects,	
C-MS-019	MS	S			Understand uncertainty principle, Schrodinger equation, tunneling and spin.	
C-MS-020	MS	T			Understand the behavior of semiconductor	
C-MS-021	MS	U			Understand relations among physics, chemical, logic circuits and computer systems.	
C-MS-022	MS	V			Understand the statistical thermodynamics	
C-MS-023	MS	W			Comprehend the relationship between macro- and micro physics	

EC-English Communication

Code	Field	Key	Title (En)	Title (Ja)	Statement (En)	Statement (Ja)
C-EC-001-1	EC	A	Academic Oral Communication-1		Demonstrate English language competency, at the word and sentence level, in understanding spoken language in the academic genre.	
C-EC-001-2	EC	A	Academic Oral Communication-2		Demonstrate English language competency, at the word and sentence level, in understanding spoken language in the academic genre.	
C-EC-001-3	EC	A	Academic Oral Communication-3		Demonstrate English language competency, at the word and sentence level, in understanding spoken language in the academic genre.	

Code	Field	Key	Title (En)	Title (Ja)	Statement (En)
C-EC-001-4	EC	A	Academic Oral Communication-4		Demonstrate English language competency, at the word and sentence level, in understanding spoken language in the academic genre.
C-EC-001-5	EC	A	Academic Oral Communication-5		Demonstrate English language competency, at the word and sentence level, in understanding spoken language in the academic genre.
C-EC-001-6	EC	A	Academic Oral Communication-6		Demonstrate English language competency, at the word and sentence level, in understanding spoken language in the academic genre.
C-EC-002-1	EC	B	English Language Fluency-1		Apply the English knowledge they have with increased speed and fluency.
C-EC-002-2	EC	B	English Language Fluency-2		Apply the English knowledge they have with increased speed and fluency.
C-EC-002-3	EC	B	English Language Fluency-3		Apply the English knowledge they have with increased speed and fluency.
C-EC-002-4	EC	B	English Language Fluency-4		Apply the English knowledge they have with increased speed and fluency.
C-EC-002-5	EC	B	English Language Fluency-5		Apply the English knowledge they have with increased speed and fluency.
C-EC-002-6	EC	B	English Language Fluency-6		Apply the English knowledge they have with increased speed and fluency.
C-EC-002-7	EC	B	English Language Fluency-7		Apply the English knowledge they have with increased speed and fluency.
C-EC-002-8	EC	B	English Language Fluency-8		Apply the English knowledge they have with increased speed and fluency.
C-EC-003-1	EC	C	Descriptive Academic English-1		Demonstrate English language competency, at the word and sentence level, in expressing descriptive function types in the academic genre.
C-EC-003-2	EC	C	Descriptive Academic English-2		Demonstrate English language competency, at the word and sentence level, in expressing descriptive function types in the academic genre.
C-EC-004-1	EC	D	Argumentative Academic English-2		Demonstrate English language competency, at the word and sentence level, in expressing argumentative function types in the academic genre.
C-EC-004-2	EC	D	Argumentative Academic English-2		Demonstrate English language competency, at the word and sentence level, in expressing argumentative function types in the academic genre.
C-EC-004-3	EC	D	Argumentative Academic English-3		Demonstrate English language competency, at the word and sentence level, in expressing argumentative function types in the academic genre.
C-EC-004-4	EC	D	Argumentative Academic English-4		Demonstrate English language competency, at the word and sentence level, in expressing argumentative function types in the academic genre.
C-EC-005-1	EC	E	Professional English Writing-1		Apply professional writing strategies (e.g., organization, layout, formatting, text-graphics coordination and content judgment).
C-EC-005-2	EC	E	Professional English Writing-2		Apply professional writing strategies (e.g., organization, layout, formatting, text-graphics coordination and content judgment).
C-EC-005-3	EC	E	Professional English Writing-3		Apply professional writing strategies (e.g., organization, layout, formatting, text-graphics coordination and content judgment).
C-EC-006-1	EC	F	Designing Technical Presentations-1		Design a technical presentation, find synonyms, and present research without notes.
C-EC-006-2	EC	F	Designing Technical Presentations-2		Design a technical presentation, find synonyms, and present research without notes.
C-EC-007	EC	G	Poster Creation		Create a poster for a research presentation.
C-EC-008-1	EC	H	Research Paper Writing-1		Write a research paper which is clear, concise, correct, objective and formal.
C-EC-008-2	EC	H	Research Paper Writing-2		Write a research paper which is clear, concise, correct, objective and formal.
C-EC-009-1	EC	I	Research Paper Presentation-1		Deliver a research presentation to showcase the research project.
C-EC-009-2	EC	I	Research Paper Presentation-2		Deliver a research presentation to showcase the research project.
C-EC-009-3	EC	I	Research Paper Presentation-3		Deliver a research presentation to showcase the research project.
C-EC-009-4	EC	I	Research Paper Presentation-4		Deliver a research presentation to showcase the research project.
C-EC-009-5	EC	I	Research Paper Presentation-5		Deliver a research presentation to showcase the research project.
C-EC-009-6	EC	I	Research Paper Presentation-6		Deliver a research presentation to showcase the research project.
C-EC-009-7	EC	I	Research Paper Presentation-7		Deliver a research presentation to showcase the research project.
C-EC-009-8	EC	I	Research Paper Presentation-8		Deliver a research presentation to showcase the research project.
C-EC-009-9	EC	I	Research Paper Presentation-9		Deliver a research presentation to showcase the research project.
C-EC-010-1	EC	J	English Communication Strategies-1		Understand and use English effectively and independently via a variety of strategies
C-EC-010-2	EC	J	English Communication Strategies-2		Understand and use English effectively and independently via a variety of strategies
C-EC-010-3	EC	J	English Communication Strategies-3		Understand and use English effectively and independently via a variety of strategies
C-EC-010-4	EC	J	English Communication Strategies-4		Understand and use English effectively and independently via a variety of strategies
C-EC-010-5	EC	J	English Communication Strategies-5		Understand and use English effectively and independently via a variety of strategies
C-EC-010-6	EC	J	English Communication Strategies-6		Understand and use English effectively and independently via a variety of strategies
C-EC-010-7	EC	J	English Communication Strategies-7		Understand and use English effectively and independently via a variety of strategies
C-EC-011-1	EC	K	High Frequency English Expressions-1		Understand and produce high frequency language items in written and spoken English.

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Code	Field	Key	Title (En)	Title (Ja)	Statement (En)	Statement (Ja)
C-EC-011-2	EC	K	High Frequency English Expressions-2		Understand and produce high frequency language items in written and spoken English.	
C-EC-011-3	EC	K	High Frequency English Expressions-3		Understand and produce high frequency language items in written and spoken English.	
C-EC-011-4	EC	K	High Frequency English Expressions-4		Understand and produce high frequency language items in written and spoken English.	
C-EC-011-5	EC	K	High Frequency English Expressions-5		Understand and produce high frequency language items in written and spoken English.	
C-EC-011-6	EC	K	High Frequency English Expressions-6		Understand and produce high frequency language items in written and spoken English.	
C-EC-012-1	EC	L	Performing Tasks in English-1		Use their knowledge of English to effectively perform a variety of language-based tasks related to their daily and academic life needs.	
C-EC-012-2	EC	L	Performing Tasks in English-2		Use their knowledge of English to effectively perform a variety of language-based tasks related to their daily and academic life needs.	
C-EC-012-3	EC	L	Performing Tasks in English-3		Use their knowledge of English to effectively perform a variety of language-based tasks related to their daily and academic life needs.	
C-EC-012-4	EC	L	Performing Tasks in English-4		Use their knowledge of English to effectively perform a variety of language-based tasks related to their daily and academic life needs.	
C-EC-012-5	EC	L	Performing Tasks in English-5		Use their knowledge of English to effectively perform a variety of language-based tasks related to their daily and academic life needs.	
C-EC-012-6	EC	L	Performing Tasks in English-6		Use their knowledge of English to effectively perform a variety of language-based tasks related to their daily and academic life needs.	
C-EC-012-7	EC	L	Performing Tasks in English-7		Use their knowledge of English to effectively perform a variety of language-based tasks related to their daily and academic life needs.	
C-EC-012-8	EC	L	Performing Tasks in English-8		Use their knowledge of English to effectively perform a variety of language-based tasks related to their daily and academic life needs.	
C-EC-012-9	EC	L	Performing Tasks in English-9		Use their knowledge of English to effectively perform a variety of language-based tasks related to their daily and academic life needs.	
C-EC-013-1	EC	M	Understanding English Presentations-1		Listen to, understand, and verbally summarize a presentation in English.	
C-EC-013-2	EC	M	Understanding English Presentations-2		Listen to, understand, and verbally summarize a presentation in English.	
C-EC-013-3	EC	M	Understanding English Presentations-3		Listen to, understand, and verbally summarize a presentation in English.	
C-EC-013-4	EC	M	Understanding English Presentations-4		Listen to, understand, and verbally summarize a presentation in English.	
C-EC-014-1	EC	N	English Language Learner Skills-1		Demonstrate the adoption of English language learner skills that will support life-long learning	
C-EC-014-2	EC	N	English Language Learner Skills-2		Demonstrate the adoption of English language learner skills that will support life-long learning	
C-EC-014-3	EC	N	English Language Learner Skills-3		Demonstrate the adoption of English language learner skills that will support life-long learning	
C-EC-014-4	EC	N	English Language Learner Skills-4		Demonstrate the adoption of English language learner skills that will support life-long learning	
C-EC-014-5	EC	N	English Language Learner Skills-5		Demonstrate the adoption of English language learner skills that will support life-long learning	
C-EC-014-6	EC	N	English Language Learner Skills-6		Demonstrate the adoption of English language learner skills that will support life-long learning	
C-EC-014-7	EC	N	English Language Learner Skills-7		Demonstrate the adoption of English language learner skills that will support life-long learning	
C-EC-014-8	EC	N	English Language Learner Skills-8		Demonstrate the adoption of English language learner skills that will support life-long learning	
C-EC-014-9	EC	N	English Language Learner Skills-9		Demonstrate the adoption of English language learner skills that will support life-long learning	
C-EC-014-10	EC	N	English Language Learner Skills-10		Demonstrate the adoption of English language learner skills that will support life-long learning	

HS-Humanities and Social Science

Code	Field	Key	Title (En)	Title (Ja)	Statement (En)	Statement (Ja)
C-HS-001	HS	A	Foundations of Learning in the Humanities and	人文・社会科学 領域における学習の基礎	Understand the issues in the field based on a basic knowledge of the humanities and social sciences	人文・社会科学の基礎的な知識を基礎として、人文・社会科学領域における課題を理解している
C-HS-002	HS	B		日本語文章理解		日本語で書かれた論説（本・文献）の内容を理解できる。
C-HS-003	HS	C		論理的・学術的文章作成能力		読んだ内容に対して、自分の主張を論理的に組み立てることができ、それを正確な日本語で表すことができる。また剽窃を避け、適切な引用を行うことができる。
C-HS-004	HS	D		人文社会科学的問題解決力		人文社会科学的な認識方法の基礎が身についている
C-HS-005	HS	E		哲学的問題の理解		主要な哲学的問題について、問題の内容とそれをめぐる論争をおおむね説明できる
C-HS-006	HS	F		科学の歴史・現状の理解		科学の歴史および現状について、それを理解することができる
C-HS-007	HS	G		現代経済の理解と分析		経済学的なものの見方を通じて、経済現象を理解できる。また、経済政策を批判的に検討できる。
C-HS-008	HS	H		経済発展・格差の理解		人間の社会性や経済発展と格差の問題を理解できる。また、経済発展を促進するための制度・政策を議論できる。
C-HS-009	HS	I		社会学の基礎		社会学の基礎を理解できる。
C-HS-010	HS	J		社会学的な視点		社会学的知見に基づいた独自の見解が持てる。
C-HS-011	HS	K		地域社会学の基礎		地域社会学の基礎を理解できる。

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Code	Field	Key	Title (En)	Title (Ja)	Statement (En)	Statement (Ja)	Courses
C-HS-012	HS	L		地域社会学的な視点		地域の現況に基づいた独自の見解が持てる。	1
C-HS-013	HS	M	of the basics of public health and	公衆衛生の基本としくみの理解	Comprehension of the essential public health basics and mechanisms	公衆衛生の基本的なしくみと課題について、それを理解すること ができる	1
C-HS-014	HS	N		経営の諸活動全般に関する理解1		経営に従事する取引関係の主体について理解・説明することがで きる	3
C-HS-015	HS	O		経営の諸活動全般に関する理解2		それぞれの主体の活動に関連する経営学の諸領域を理解・説明す ることができる	3
C-HS-016	HS	P		経営の諸活動全般に関する理解3		それぞれの主体に期待される活動や能力について、自らの考察を 加えて提案することができる	3
C-HS-017	HS	Q		ジメントに関する理解1		組織内の人々のマネジメントに関わる諸現象を特定し、説明する ことができる	1
C-HS-018	HS	R		ジメントに関する理解2		組織内の人々のマネジメントの諸問題に関わる基礎的な理論を理 解・説明することができる	1
C-HS-019	HS	S		ジメントに関する理解3		マネジメントで起こる諸課題について、基礎的な理論に基づき、 考察を加えて解決策を提案することができる	1
C-HS-020	HS	T		メントに関する理解1		組織と環境の調整についての諸現象を特定し、説明することがで きる	2
C-HS-021	HS	U		メントに関する理解2		組織と環境の調整についての諸現象に関わる基礎的な理論を理 解・説明することができる	2
C-HS-022	HS	V		メントに関する理解3		組織と環境の調整において起こる課題について、基礎的な理論に 基づいて、考察を加えて解決策を提案することができる	2
C-HS-023	HS	W		動に関わる全般的な理解1		人のこころや行動についての諸現象を特定し、説明することがで きる	2
C-HS-024	HS	X		動に関わる全般的な理解2		人のこころや行動についての基礎的な理論を理解・説明すること ができる	2
C-HS-025	HS	Y		動に関わる全般的な理解3		人のこころや行動についての諸問題を、関連する基礎的な理論に 基づいて考察し、解決策を提案することができる	2

SS-Sports Science

Code	Field	Key	Title (En)	Title (Ja)	Statement (En)	Statement (Ja)	Courses
C-SS-001	SS	A	management and operation	運動環境の管理運用	Understand how to use sports facilities and sports implements, and to manage and operate them appropriately to suit the situation.	スポーツ施設や道具の使用方法を理解し、状況に応じて適切に管 理・運用することができる	4
C-SS-002	SS	B	Caring for mental and physical	心身の状態への配慮	To recognize and take care of own physical and mental condition	自己の心身の状態を認識し、配慮できる	4
C-SS-003	SS	C	Physiological Adaptation to the	環境への適応限界	Comprehend the adaptive limits of living organisms to the environment and cope with them appropriately.	環境への生体の適応限界について理解し、適切に対処できる	4
C-SS-004	SS	D	benefits of exercise	運動の効果の理解	Understand the immediate and long-term benefit of exercise.	運動による即時的、長期的効果を理解している。	4
C-SS-005	SS	E	life-skills	ライフスキル	Demonstrate skills such as motivation, perseverance, self-control, diligence, cooperation, tolerance, and other so-called non-cognitive abilities to behave and not to behave proactively and appropriately depending on the situation	やる気や忍耐力、自制心、勤勉性、協調性、寛容性といったいわ ゆる非認知能力を発揮し、状況に応じて主体的かつ適切に行動・ 非行動することが出来る	4
C-SS-006	SS	F	Time/stimulus management	時間・刺激のマネジメント	Management of time and stimulus with consideration for the balance of exercise, nutrition, and rest.	運動・栄養・休息のバランスを配慮し、時間や刺激のマネジメン トができる	4
C-SS-007	SS	G	Training	基礎理論	Understands basic training theories.	トレーニングの基礎理論を理解している	2
C-SS-008	SS	H	Measurement and evaluation of physical fitness	体力及びパフォーマンスの測定・評価	To critically reflect on personal fitness levels and activities through measurement and evaluation, and to modify and develop personal behaviors.	測定と評価を通して自己の体力水準や活動内容を批判的にふり返 り、行動を修正・発展させることができる	2
C-SS-009	SS	I	Values of sports and recreation	スポーツ及びレクリエーション	Comprehend the unique values and benefits of sports and recreation and express a sense of them.	レクリエーション及び各種スポーツ特有の価値と意義を享受でき る	6

TE-Teaching Education

Code	Field	Key	Title (En)	Title (Ja)	Statement (En)	Statement (Ja)	Courses
C-TE-001	TE	A	teacher-training	教職課程	Acquired basic knowledge and skills for teacher licensure	教員免許状を取得するための基本的な知識と技能を身につけてい る	27

関連資料 References

1. 認知能力レベル(B-I～B-VI)の定義
   Definitions of Levels of Cognitive Skills(B-I～B-VI)

2. スキルマップ(各科目とコンピテンシーの対応表)
   Skill Map(Correspondence chart between courses and competencies)

3. Knowledge, Disposition 一覧
   List of Knowledge, Disposition