Application Specialist (Training Road Map)

2010

IT Skill Standards Center

IT Human Resources Development Headquarters

INFORMATION-TECHNOLOGY PROMOTION AGENCY (IPA), JAPAN

Ministry of Economy, Trade and Industry

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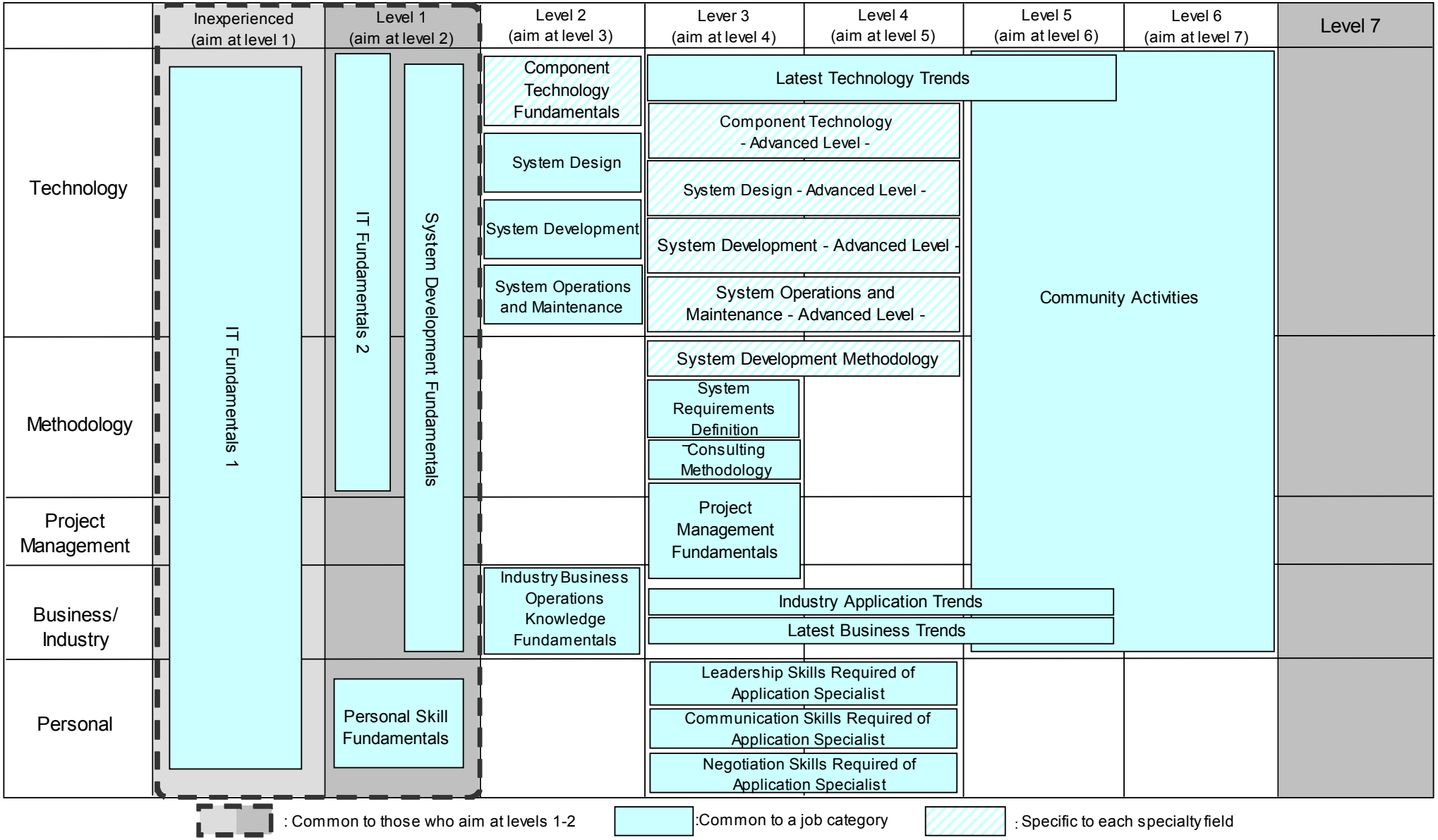
Application Specialist (Application System) Training Course Group



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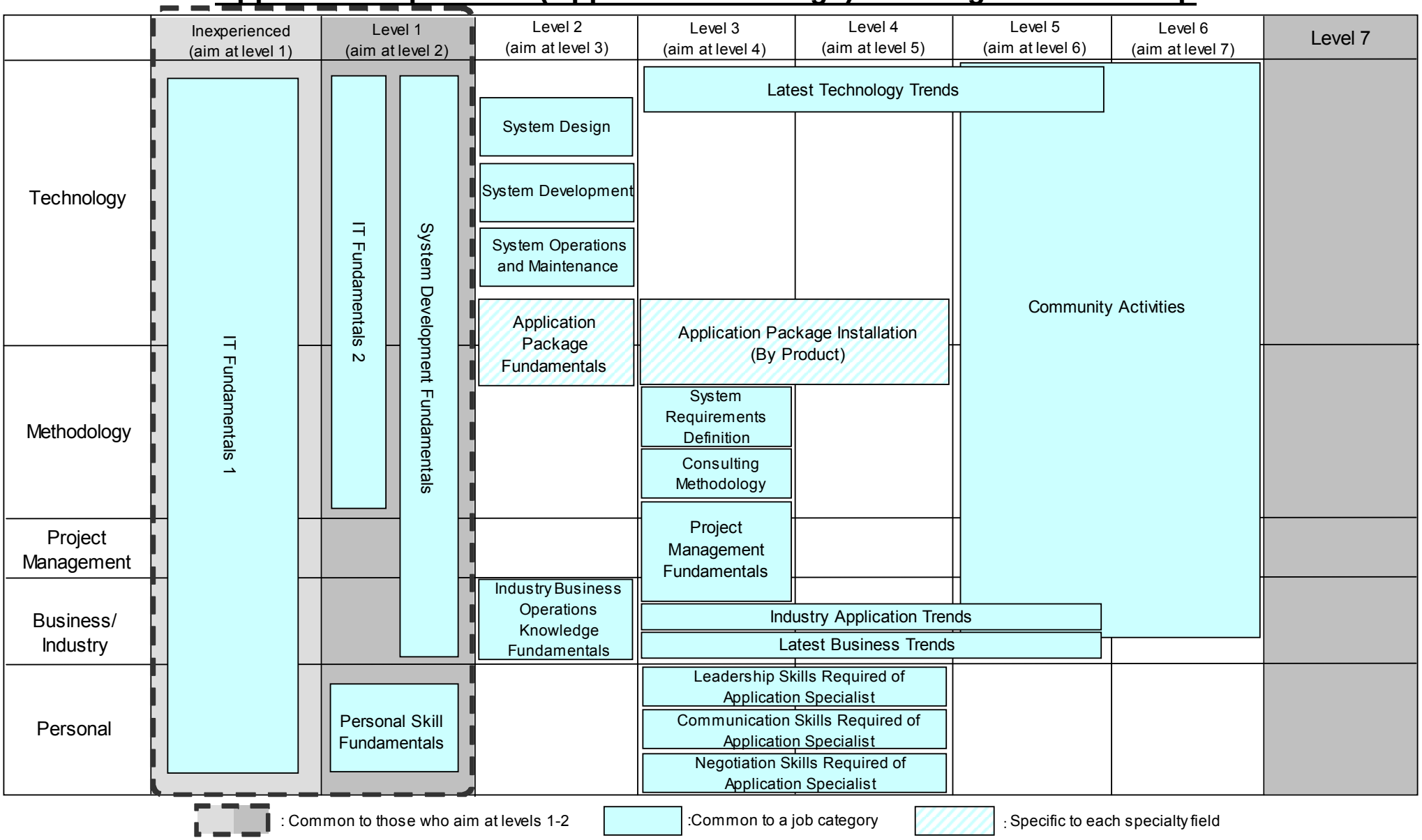
Application Specialist (Application Package) Training Course Group



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Application Specialist (Application System) Course List

Training Course Level		Training Course Group Name	Training Course Name	Method			Standard Duration		Page
				E-Learning	Lecture	Workshop	E-Learning (Total hours)	Class (Total days)	
Common to Job Category	Basic Course	System Design	System Design Fundamentals	*	*	*	30	5	10
			Major Application Design (Common to Industries)	*			6		13
			Major Application Design (Specific to Industry)	*			6		15
		System Development	System Development	*		*	60	5	18
		System Operations / Maintenance	System Operations / Maintenance	*	*	*	30	5	22
		Industry Business Operations Knowledge Fundamentals	Industry Business Operations Knowledge Fundamentals	*			12		26
		System Requirements Definition Techniques	System Requirements Definition Techniques	*		*	12	3	29
		Consulting Methodology	Consulting Methodology	*	*	*	12	2	32
		Project Management Fundamentals	Project Management Fundamentals	*			30		35
	Advanced Course	Leadership Skills Required of Application Specialist	Leadership Skills Required of Application Specialist			*		3	38
		Communication Skills Required of Application Specialist	Communication Skills Required of Application Specialist			*		3	41
		Negotiation Skills Required of Application Specialist	Negotiation Skills Required of Application Specialist			*		3	44
	Special Course	Latest Technology Trends	Latest Technology Trends		*			1	47
		Industry Application Trends	Industry Application Trends	*	*		12	2	50
		Latest Business Trends	Latest Business Trends	*	*		3	0.5	53
		Community Activities	Community Activities	-	-	-	-	-	56

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Training Course Level		Training Course Group Name	Training Course Name	Method			Standard Duration		Page
				E-Learning	Lecture	Workshop	E-Learning (Total hours)	Class (Total days)	
Specific to Each Specialty Field <Selective Courses>	Basic Course	Component Technology Fundamentals	Component Technology Fundamentals	*			12		59
	Advanced Course	Component Technology - Advanced Level -	Platform Component Technology	*			18		62
			System Management Infrastructure Component Technology		*	*		5	64
			Database Component Technology	*	*		18	3	66
			Network Component Technology	*	*		12	3	68
			Distributed Computing System Component Technology	*	*		18	3	70
			Security System Component Technology	*	*		18	3	73
		System Design - Advanced Level -	Application System Design - Advanced Level -		*	*		5	76
		System Development - Advanced Level -	Application System Development - Advanced Level -	*		*	30	5	81
		System Operations / Maintenance - Advanced Level -	Application System Operations / Maintenance - Advanced Level -	*		*	60	5	85
		System Development Methodology	Application System Development Methodology	*		*	30	5	89

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Application Specialist (Application Package) Course List

Training Course Level		Training Course Group Name	Training Course Name	Method			Standard Duration		Page
				E-Learning	Lecture	Workshop	E-Learning (Total hours)	Class (Total days)	
Common to Job Category	Basic Course	System Design	System Design Fundamentals	*	*	*	30	5	10
			Major Application Design (Common to Industries)	*			6		13
			Major Application Design (Specific to Industry)	*			6		15
		System Development	System Development	*		*	60	5	18
		System Operations / Maintenance	System Operations / Maintenance	*	*	*	30	5	22
		Industry Business Operations Knowledge Fundamentals	Industry Business Operations Knowledge Fundamentals	*			12		26
		System Requirements Definition Techniques	System Requirements Definition Techniques	*		*	12	3	29
		Consulting Methodology	Consulting Methodology	*	*	*	12	2	32
		Project Management Fundamentals	Project Management Fundamentals	*			30		35
	Advanced Course	Leadership Skills Required of Application Specialist	Leadership Skills Required of Application Specialist			*		3	38
		Communication Skills Required of Application Specialist	Communication Skills Required of Application Specialist			*		3	41
		Negotiation Skills Required of Application Specialist	Negotiation Skills Required of Application Specialist			*		3	44
	Special Course	Latest Technology Trends	Latest Technology Trends		*			1	47
		Industry Application Trends	Industry Application Trends	*	*		12	2	50
		Latest Business Trends	Latest Business Trends	*	*		3	0.5	53
		Community Activities	Community Activities	-	-	-	-	-	56

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Training Course Level		Training Course Group Name	Training Course Name	Method			Standard Duration		Page
				E-Learning	Lecture	Workshop	E-Learning (Total hours)	Class (Total days)	
Specific to Each Specialty Field <Selective Courses>	Basic Course	Application Package Fundamentals	Application Package Fundamentals	*	*	*	18	3	93
	Advanced Course	Application Package Installation (By Product)	Application Package Installation (By Product)	-	-	-	-	-	98

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Application Specialist

Training Course Description

<Common to Application Specialist>

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System Design (3 courses)

- System Design Fundamentals
- Major Application Design (Common to Industries)
- Major Application Design (Specific to Industry)

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Course Name / Content	System Design Fundamentals
Training Course Level	☐Introductory Course ■Basic Course ☐Advanced Course ☐Special Course
Training Area (Common or Specialty Field)	■Common to Application Specialist ☐Application System ☐Application Package
Outline	Aim: Attendees acquire broad and fundamental knowledge of system design (e.g., methodology, techniques, and design patterns) universally important for designing general information systems regardless of any application types. ○The attendees learn analysis methods of business requirements of information systems, knowledge important for external and internal design, design methods of user interfaces and interfaces for other systems. The attendees also learn design of an information system processing flow associated with the business requirements of information systems, external and internal design, and interfaces between users and other systems, and charts and tools utilized for designing the information system processing flow. ○In the first half, the attendees learn fundamental knowledge of information system design via e-learning type methods. In the second half, the attendees learn through lectures and exercises in design operations in a virtual information system development project.
Attendee	Those who have participated in projects of business application development or projects of application system implementation projects by utilizing application packages before as members of application development teams (those who aim to acquire the knowledge of Application Specialist level 3)
Precondition	Have completed System Development Fundamentals course group, or possess equivalent knowledge.
Training Method	E-learning, Lecture, Workshop
Duration	[First Half] Standard term: 30 hours (e-learning 6 hours/day x 5 days) [Second Half] Standard term: 5 days (classroom)
Learning Goal	Can design a system independently as a member of an application development team by utilizing fundamental knowledge of system design.

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Skill Items	Knowledge Items
Analysis of Business Operations	-Analysis of Technical Requirements Existing IT Environmental Analysis, Understanding of New Technical Requirements, Needs Analysis and Prioritization -Definition of Platform Requirements CPU Performance Estimation, Storage Capacity Estimation, Estimation of Transmission Quantity, Estimation of Transaction Quantity, Response Time Estimation
Technology	-System Platform Technology Utilization and Practice of Operating System Technology (Mainframe, Distributed Computing Systems (Small Business Computers Proprietary OS), UNIX, WINDOWS, Linux, etc.)
Design	-Requirement s Definition Clarification of User Demands and Project Scope and Objectives, Project Prioritization and Coordination with Related Departments, Implementation of Requirement Investigation, Requirements Definition and Documentation, Resource Request Investigation, Systemization Planning -Understanding of Database, Middleware, and Distributed Computing Design Selection of Optimal Database, Middleware, and Distributed Computing, Understanding of Functions and Restrictions of Databases, Middleware, and Distributed Computing, Practice of Application Design utilizing Databases, Middleware, and Distributed Computing -Understanding and Utilization of Modeling Techniques Utilization and Practice of Data Modeling Techniques, Utilization and Practice of Process Modeling Techniques, Utilization and Practice of Performance Modeling Techniques, Utilization and Practice of Prototyping Techniques, Utilization and Practice of Benchmarking Techniques

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Skill Items	Knowledge Items
Software Engineering	-Design Methods Object-oriented Design, Structural Design, Data-oriented Design -Development Methods Development Method Selection, Utilization and Practice of Development Methods, Waterfall Models, RAD (Rapid Application Development) Models, Spiral Models, Application Package Specific Development Methods -Utilization of Development Support Tools Development Environment, Various Application Development Tools, Management Tools, Debugger, Simulator, etc. -Reuse Methods Utilization of Software Components, Deliverables Utilization of Advanced Project, Utilization and Practice of Reuse Methods, Architectural Patterns, Design Patterns, Frameworks, etc. -External Design External Design Procedure, System Function Design, Data Model Design, Creation of External Specifications -Internal Design Function Design, Interface Design, Internal Data Design, Identification and Role-definition of Subcomponents, Relationship Definition among Subcomponents, Creation of Internal Specifications -Object-oriented Development Object-oriented Basic Concept, UML, Object-oriented Development Process, Analysis, Design, Implementation, Main Object-oriented Techniques -Program Design Development Techniques and Platform Selection, Program Design Criteria, Creation of Program Specification, Creation of Test Plan and Specifications -Technological Problem Solving Methods Utilization and Practice of Technological Problem Solving Methods

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Course Name / Content	Major Application Design (Common to Industries)
Training Course Level	☐Introductory Course ■Basic Course ☐Advanced Course ☐Special Course
Training Area (Common or Specialty Field)	■Common to Application Specialist ☐Application System ☐Application Package
Outline	Aim: This is one of the courses in System Design course group, which is the subsequent of System Development Fundamentals course group. Attendees acquire fundamental knowledge of design of major business applications for general business operations common to industries. ○Regarding design of application systems utilized for business operations (e.g., human resource management, general affairs, finance and accounting, sales, logistics, and workflow) common to many industries, the attendees learn contents and characteristics of business operations, points and considerations on analysis of business requirements, design patterns by application, an overview of major functions of application packages by application. ○To provide learning contents on each application is recommended.
Attendee	Those who have participated in projects of business application development or projects of application system implementation projects by utilizing application packages before as members of application development teams (those who aim to acquire the knowledge of Application Specialist level 3)
Precondition	Have completed System Development Fundamentals course group and System Design Fundamentals course, or possess equivalent knowledge.
Training Method	E-learning
Duration	Standard term: 6 hours/application (e-learning 6 hours/day x 1 day)
Learning Goal	Can design an application independently as a member of an application development team by utilizing fundamental knowledge of design of a major application common to industries.

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Skill Items	Knowledge Items
Development of Application Systems	-General Business Contents General Business Contents, Understanding and Utilization of Characteristics, Understanding and Utilization of Industry-specific Standard Technology -Latest General Business Trends Understanding and Utilization of Industry Specific Latest Trends, Understanding and Utilization of Industry Specific System Installation Cases -Application System Design Understanding and Utilization of Industry Specific Relevant Technology Information, Selection of Industry Specific Optimal Platform, Practice of Industry Specific Application System Design
Development of Application Systems Utilizing Application Packages	-Application Package Contents Understanding of Application Package Contents and Utilization of their Characteristics

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Course Name / Content	Major Application Design (Specific to Industry)
Training Course Level	☐Introductory Course ■Basic Course ☐Advanced Course ☐Special Course
Training Area (Common or Specialty Field)	■Common to Application Specialist ☐Application System ☐Application Package
Outline	Aim: This is one of the courses in System Design course group, which is the subsequent of System Development Fundamentals course group. Attendees acquire fundamental knowledge design of major business applications specific to each industry. ○The attendees learn the following important for design of application systems specific to each industry (e.g., manufacturing, distribution, finance, and telecommunication): contents and characteristics of business operations specific to each industry, points of and considerations on analysis of business requirements, design patterns by application, an overview of functions of major application packages by application. ○To provide learning contents on application basis is recommended.
Attendee	Those who have participated in projects of business application development or projects of application system implementation projects by utilizing application packages before as members of application development teams (those who aim to acquire the knowledge of Application Specialist level 3)
Precondition	Have completed System Development Fundamentals course group and System Design Fundamentals course, or possess equivalent knowledge.
Training Method	E-learning
Duration	Standard term: 6 hours/application (e-learning 6 hours/day x 1 day)
Learning Goal	Can design an application independently as a member of an application development team by utilizing fundamental knowledge of design of an application specific to an industry.

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Skill Items	Knowledge Items
Development of Application Systems	-Latest General Business Trends Understanding and Utilization of Industry Specific Latest Trends, Understanding and Utilization of Industry Specific System Installation Cases
Industry Specific Application System Development	-Industrial Applications Design Optimum Platform Selection, Practice of Industrial Applications Design -Industry Knowledge Knowledge Utilization of Industry Common Applications, Knowledge Utilization of Industry Specific Applications, Understanding of Industry Business Trend and Technology Trend and Competition Status, Understanding and Utilization of Industry Terms and Relevant Regulations, Understanding and Utilization of Industry Specific Business Environment, Understanding and Utilization of Industry Specific Business Practice, Understanding and Utilization of Industry Specific Business Contents
Development of Application Systems Utilizing Application Packages	-Application Package Contents Understanding of Application Package Contents and Utilization of their Characteristics

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System Development (1 course)

●System Development

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Course Name / Content	System Development
Training Course Level	☐Introductory Course ■Basic Course ☐Advanced Course ☐Special Course
Training Area (Common or Specialty Field)	■Common to Application Specialist ☐Application System ☐Application Package
Outline	Aim: Attendees acquire fundamental knowledge of information system development. ○In addition to programming languages important for application development, the attendees learn major algorithm, validity of application tests, how to assess results of the application tests, installation and migration of information systems, methods of project progress management. ○Through e-learning type methods in the first half, the attendees perform exercises in major programming languages utilized in information system development and programming languages utilized in middleware, and the attendees also learn major algorithm, various tools utilized in programming, and methods of understanding and management of project progress. In the second half, the attendees learn how to develop information systems by utilizing development environment of virtual information systems in workshops. ○Programming environment for exercises in e-learning type methods should be provided as nearly as possible for real system development environment.
Attendee	Those who have participated in projects of business application development or projects of application system implementation projects by utilizing application packages before as members of application development teams (those who aim to acquire the knowledge of Application Specialist level 3)
Precondition	Have completed System Development Fundamentals course, or possess equivalent knowledge.
Training Method	E-learning, Workshop
Duration	[First Half] Standard term: 60 hours (e-learning 6 hours/day x 10 days) [Second Half] Standard term: 5 days (classroom)
Learning Goal	Can develop an information system independently as a member of an application development team by utilizing fundamental knowledge of system development.

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Skill Items	Knowledge Items
Technology	-Computer Science Fundamentals Basic Theory of Information, Data Structure and Algorithm -Programming Languages /Markup Languages Various Languages such as C and C++ and COBOL and Java and UML and HTML and XML, Characteristics of Notation, Usage of Graphical Development Environment
Design	-Development Environment al Design Definition of Development Environmental Requirement, Platform Selection

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Skill Items	Knowledge Items
Software Engineering	-Utilization of Development Support Tools Development Environment, Various Application Development Tools, Management Tools, Debugger, Simulator, etc. -Programming Techniques Various Programming Languages Techniques, Utilization and Practice of Notation -Programming Languages Characteristics of Various Languages such as C and C++ and COBOL and Basic, Development in Graphical Development Environment -Testing Techniques Test Case Design, Specification Determination, Test Environment Set-up, Management, Test Data Preparation, Test Tool Utilization -Reuse Methods Utilization of Software Components, Deliverables Utilization of Advanced Project, Utilization and Practice of Reuse Methods, Architectural Patterns, Design Patterns, Frameworks, etc. -Object-oriented Development Object-oriented Basic Concept, UML, Object-oriented Development Process, Analysis, Design, Implementation, Main Object-oriented Techniques -Utilization of Verification Methods Walk Through and Inspection -Technology Verification Methods Prototyping, Simulation, Modeling -Technological Problem Solving Methods Utilization and Practice of Technological Problem Solving Methods
Project Management	-Project Time Management Activity Definition, Activity Sequencing, Activity Resource Estimating, Activity Duration Estimating, Schedule Development, Schedule Control

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System Operations / Maintenance (1 course)

●System Operations / Maintenance

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Course Name / Content	System Operations / Maintenance
Training Course Level	☐Introductory Course ■Basic Course ☐Advanced Course ☐Special Course
Training Area (Common or Specialty Field)	■Common to Application Specialist ☐Application System ☐Application Package
Outline	Aim: This is the subsequent course of System Development Fundamental course group, and attendees acquire fundamental knowledge of operations and maintenance of information systems. ○The attendees learn the following important for smooth operations of information systems: management items, management methods, and management standards. The attendees also learn responses against failures of operating systems and significant middleware, information system monitoring, system resource management, measures against failures and recovery, and system maintenance. ○In the first half, the attendees learn fundamental knowledge of information system operations and maintenance via e-learning type method. In addition to lectures, the attendees perform exercises in the second half by utilizing the virtual development environment of information systems prepared in the previous course.
Attendee	Those who have participated in projects of business application development or projects of application system implementation projects by utilizing application packages before as members of application development teams (those who aim to acquire the knowledge of Application Specialist level 3)
Precondition	Have completed System Development Fundamentals course group, or possess equivalent knowledge.
Training Method	E-learning, Lecture, Workshop
Duration	[First Half] Standard term: 30 hours (e-learning 6 hours/day x 5 days) [Second Half] Standard term: 5 days (classroom)
Learning Goal	Can operate and maintain an information system independently as member of an application development team by utilizing fundamental knowledge of system operations and maintenance.

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Skill Items	Knowledge Items
Technology	-System Management Technologies System Resource Monitoring Technology, Process Monitoring Technology, Interface Technology for System Software and Middleware Management Functions, Performance Measurement Technology, Configuration Management Functions for Hardware and Software, Software Distribution Functions, Job Management Functions, Remote Control Functions, Access Management Functions, User Management Functions, Risk Management Functions, Storage Management Functions
Software Engineering	-Implementation and Inspection of Security Systems Selection and Installation of Security Products and Tools, Security System Development, Security Techniques Implementation -Technological Problem Solving Methods Utilization and Practice of Technological Problem Solving Methods
Development of Application Systems	-General Business Contents General Business Contents, Understanding and Utilization of Characteristics, Understanding and Utilization of Industry-specific Standard Technology -Latest General Business Trends Understanding and Utilization of Industry Specific Latest Trends, Understanding and Utilization of Industry Specific System Installation Cases -Industry Knowledge Knowledge Utilization of Industry Common Applications, Knowledge Utilization of Industry Specific Applications, Understanding of Industry Business Trend and Technology Trend and Competition Status, Understanding and Utilization of Industry Terms and Relevant Regulations, Understanding and Utilization of Industry Specific Business Environment, Understanding and Utilization of Industry Specific Business Practice, Understanding and Utilization of Industry Specific Business Contents
Development of Application Systems Utilizing Application Packages	-Application Package Contents Understanding of Application Package Contents and Utilization of their Characteristics -Performance Tuning of Application Package Utilization and Practice of Performance Tuning Methods (Trace, Debugging, Problem Identification, Problem Solving, Route Optimization Method, etc.)

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Skill Items	Knowledge Items
Project Management	-Project Integration Management Develop Project Charter, Develop Preliminary Project Scope Statement, Develop Project Management Plan, Direct and Manage Project Execution, Monitor and Control Project Work, Integrated Change Control, Close Project -Project Time Management Activity Definition, Activity Sequencing, Activity Resource Estimating, Activity Duration Estimating, Schedule Development, Schedule Control -Project Risk Management Risk Management Planning, Risk Identification, Qualitative Risk Analysis, Quantitative Risk Analysis, Risk Response Planning, Risk Monitoring and Control

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Industry Business Operations Knowledge Fundamentals (1 course)

●Industry Business Operations Knowledge Fundamentals

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Course Name / Content	Industry Business Operations Knowledge Fundamentals
Training Course Level	☐Introductory Course ■Basic Course ☐Advanced Course ☐Special Course
Training Area (Common or Specialty Field)	■Common to Application Specialist ☐Application System ☐Application Package
Outline	Aim: Attendees acquire knowledge of current industries and their business operations and fundamental knowledge of applications currently used or considered to be used in the future. ○ The attendees learn common business operations (e.g., sales, accounting, and human resource management) to many industries, specific business operations to each industry, and types of applications utilized in the specific business operations. Basic knowledge is a central aim, and only an overview of specific business operations in each industry is provided. To learn specialistic knowledge of specific business operations in each industry is necessary after learning basic knowledge of business operations through this course.
Attendee	Those who have participated in projects of business application development or projects of application system implementation projects by utilizing application packages before as members of application development teams (those who aim to acquire the knowledge of Application Specialist level 3)
Precondition	Have completed IT Fundamentals 1 course group, IT Fundamentals 2 course group, and System Development Fundamentals course group, or possess equivalent knowledge.
Training Method	E-learning
Duration	Standard term: 12 hours (e-learning 6 hours/day x 2 days)
Learning Goal	Can develop, operate, and maintain major applications common to industries or specific to an industry independently as a member of an application development team by utilizing fundamental knowledge of industry business operations.

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Skill Items	Knowledge Items
Analysis of Business Operations	-Industry Knowledge Knowledge Utilization of Industry Common Applications, Knowledge Utilization of Industry Specific Applications, Understanding of Industry Business Trend and Technology Trend and Competition Status, Understanding and Utilization of Industry Terms and Relevant Regulations, Understanding and Utilization of Industry Specific Business Environment, Understanding and Utilization of Industry Specific Business Practice, Understanding and Utilization of Industry Specific Business Contents -Systemization Strategy Formulation Understanding of User Vision, Goal and Business Strategy, Systemization Strategy Formulation, Systemization Strategy Formulation Utilizing Application Packages -System Value Verification IT Value Definition, Framework Development of IT Value Management -Informatization and Management Information Strategy, Corporate Accounting, Management Engineering, Utilization of Information Systems in Engineering System Area and Business System Area, Understanding and Compliance of Relevant Regulations
Development of Application Systems	-Business Environment Understanding and Utilization of Industry Specific Business Environment, Understanding and Utilization of Social Environments, Understanding and Utilization of Industry Specific Relevant Regulations, Understanding and Utilization of Industry Specific Regulatory Status, Understanding and Utilization of Convention -General Business Contents General Business Contents, Understanding and Utilization of Characteristics, Understanding and Utilization of Industry-specific Standard Technology -Latest General Business Trends Understanding and Utilization of Industry Specific Latest Trends, Understanding and Utilization of Industry Specific System Installation Cases
Industry Specific Application System Development	-Industry Knowledge Knowledge Utilization of Industry Common Applications, Knowledge Utilization of Industry Specific Applications, Understanding of Industry Business Trend and Technology Trend and Competition Status, Understanding and Utilization of Industry Terms and Relevant Regulations, Understanding and Utilization of Industry Specific Business Environment, Understanding and Utilization of Industry Specific Business Practice, Understanding and Utilization of Industry Specific Business Contents

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System Requirements Definition Techniques (1 course)

●System Requirements Definition Techniques

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Course Name / Content	System Requirements Definition Techniques
Training Course Level	☐Introductory Course ■Basic Course ☐Advanced Course ☐Special Course
Training Area (Common or Specialty Field)	■Common to Application Specialist ☐Application System ☐Application Package
Outline	Aim: Attendees learn processes and methods of requirements definition important for defining customer's business requirements and system requirements objectively and for promoting smooth system development. ○The attendees learn basic processes in requirements definition phases (e.g., confirmation of business strategies) and practical requirements definition methodologies important for actual project operations such as prioritization on, narrowing of, and decision on customer's requirements based on constraints (e.g., development duration, budget, and a framework). ○In the first half, the attendees learn basic processes of and points on requirements definition via e-learning type methods. In the second half, the attendees learn how to understand and narrow customer's requirements through experiencing simulated cases in workshops.
Attendee	Those who have been involved in projects of advanced business application development or projects of application system implementation projects by utilizing application packages before as members of application development teams (those who aim to acquire the knowledge of Application Specialist level 4)
Precondition	Have completed System Development Fundamentals course group, or possess equivalent knowledge.
Training Method	E-learning, Workshop
Duration	[First Half] Standard term: 12 hours (e-learning 6 hours/day x 2 days) [Second Half] Standard term: 3 days (classroom)
Learning Goal	Can define system requirements as a leader of an application development team based on understanding of customer's business requirements and by utilizing requirements definition knowledge .

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Skill Items	Knowledge Items
Analysis of Business Operations	-Analysis of Business Operation Requirements Understanding of User Needs, Needs Analysis and Prioritization -Analysis of Technical Requirements Existing IT Environmental Analysis, Understanding of New Technical Requirements, Needs Analysis and Prioritization -Industry Knowledge Knowledge Utilization of Industry Common Applications, Knowledge Utilization of Industry Specific Applications, Understanding of Industry Business Trend and Technology Trend and Competition Status, Understanding and Utilization of Industry Terms and Relevant Regulations, Understanding and Utilization of Industry Specific Business Environment, Understanding and Utilization of Industry Specific Business Practice, Understanding and Utilization of Industry Specific Business Contents -Analysis and Design Techniques for Business Process Analysis and Understanding of Current Business Process, Analysis and Design of New Business Process, Utilization and Practice of Analysis Techniques for Business Process
Design	-Requirement s Definition Clarification of User Demands and Project Scope and Objectives, Project Prioritization and Coordination with Related Departments, Implementation of Requirement Investigation, Requirements Definition and Documentation, Resource Request Investigation, Systemization Planning

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Consulting Methodology (1 course)

●Consulting Methodology

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Course Name / Content	Consulting Methodology
Training Course Level	☐Introductory Course ■Basic Course ☐Advanced Course ☐Special Course
Training Area (Common or Specialty Field)	■Common to Application Specialist ☐Application System ☐Application Package
Outline	Aim: Attendees understand fundamental consulting methodology, consulting processes, and techniques utilized in the consulting processes. The attendees also learn how to utilize the consulting related knowledge and techniques above. ○In the first half, the attendees learn the following via e-learning type methods; a flow of entire consulting processes using consulting techniques, techniques for data collection, data organization, and data analysis, problem extraction, problem analysis techniques, review of problem solving plans, how to formulate the problem solving plans, problem solving processes, how to prepare logical and effective reports, presentation, and negotiation in problem solving processes. In the second half, the attendees learn how to apply consulting processes utilizing consulting methodologies, and review example cases of provision of architecture solutions in workshops.
Attendee	Those who have participated in projects of business application development or projects of application system implementation projects by utilizing application packages before as members of application development teams (those who aim to acquire the knowledge of Application Specialist level 4)
Precondition	Have completed System Development Fundamentals course group, or possess equivalent knowledge.
Training Method	E-learning, Lecture, Workshop
Duration	[First Half] Standard term: 12 hours (e-learning 6 hours/day x 2 days) [Second Half] Standard term: 2 days (classroom)
Learning Goal	Can participate in projects of system design, system development, and system installation as a leader of an application development team by utilizing fundamental consulting knowledge.

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Skill Items	Knowledge Items
Utilization of Consulting Methodology	-Selection and Utilization of Consulting Techniques Comparison, Analysis, Selection and Usage of Consulting Techniques, Definition and Practice of Process, Deliverables Definition -Understanding and Utilization of Analysis Tools and Models Business Life Cycle (Introduction Stage, Growth Stage, Maturity Stage, Decline Stage) Models, Product Portfolio Management (PPM) Models, Experience Curve, 3C Analysis, SWOT Analysis, 7S Models, Michael Porter's Five Forces Model, Value Chain Analysis
Knowledge Management and Utilization	-Management and Utilization of Knowledge Databases Creation of Knowledge (Added Value, Structuring, Sharing), Knowledge Utilization, Maintenance and Management of Knowledge, Understanding Effects and Improvement, Business Model Patents

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Project Management Fundamentals (1 course)

●Project Management Fundamentals

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Course Name / Content	Project Management Fundamentals
Training Course Level	☐Introductory Course ■Basic Course ☐Advanced Course ☐Special Course
Training Area (Common or Specialty Field)	■Common to Application Specialist ☐Application System ☐Application Package
Outline	Aim: Attendees acquire fundamental knowledge of project management. ○The attendees learn, based on "PMBOK," a general concept of project management that covers all aspect of basic project management knowledge (e.g., project definitions, organization, plan formulation, schedule plan, project implementation, project management, and project completion) and that is not biased by characteristics of industries or fields.
Attendee	Those who have participated in projects of application development or projects of application system implementation projects by utilizing application packages before as members of application development teams (those who aim to acquire the knowledge of Application Specialist level 4)
Precondition	Possess fundamental knowledge of information system development and have participated in projects.
Training Method	E-learning
Duration	Standard term: 30 hours (e-learning 6 hours/day x 5 days)
Learning Goal	Can perform project management activities as a leader of an application development team by utilizing fundamental knowledge of project management .

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Skill Items	Knowledge Items
Project Management	-Project Integration Management Develop Project Charter, Develop Preliminary Project Scope Statement, Develop Project Management Plan, Direct and Manage Project Execution, Monitor and Control Project Work, Integrated Change Control, Close Project -Project Scope Management Scope Planning, Scope Definition, Create WBS, Scope Verification, Scope Control -Project Time Management Activity Definition, Activity Sequencing, Activity Resource Estimating, Activity Duration Estimating, Schedule Development, Schedule Control -Project Cost Management Cost Estimating, Cost Budgeting, Cost Control -Project Quality Management Quality Planning, Perform Quality Assurance, Perform Quality Control -Project Human Resource Management Human Resource Planning, Acquire Project Team, Develop Project Team, Manage Project Team -Project Communications Management Communications Planning, Information Distribution, Performance Reporting, Manage Stakeholders -Project Risk Management Risk Management Planning, Risk Identification, Qualitative Risk Analysis, Quantitative Risk Analysis, Risk Response Planning, Risk Monitoring and Control -Project Procurement Management Plan Purchases and Acquisitions, Plan Contracting, Request Seller Responses, Select Sellers, Contract Administration, Contract Closure

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Leadership Skills Required of Application Specialists (1 course)

●Leadership Skills Required of Application Specialists

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Course Name / Content	Leadership Skills Required of Application Specialist
Training Course Level	☐Introductory Course ☐Basic Course ■Advanced Course ☐Special Course
Training Area (Common or Specialty Field)	■Common to Application Specialist ☐Application System ☐Application Package
Outline	Aim: Attendees acquire practical skills of the following that are required of Application Specialist and success factors of any projects: object setting, team building, communication with people within and outside teams, creation of project action items, promotion of the project action items, and management of the project action items, and skills for motivating team members. ○The attendees learn, in workshops including role-play, the following items required to promote medium-sized, large-sized, or complex projects: leadership, self motivation, motivating team members through team building, interpersonal skills, discord management, and consensus building.
Attendee	Those who have completed projects and who have results of the projects as leaders or members of application development teams (those who aim to acquire the knowledge of Application Specialist level 4 or 5)
Precondition	Have completed Personal Skill Fundamentals, or possess equivalent knowledge.
Training Method	Workshop
Duration	Standard term: 3 days (classroom)
Learning Goal	Can take leadership as a person responsible for or a leader of the business application development team by utilizing practical management and operations skills of an application development team.

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Skill Items	Knowledge Items
Leadership	-Leadership Fundamentals and Principles of Leadership, Teamwork and Communication, Project Objectives Setting, Project Promotion, Project Execution, Project Management, Collaboration Between Team Members, Motivating Team Members and Provision for Feelings of Accomplishment

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Communication Skills Required of Application Specialists (1 course)

●Communication Skills Required of Application Specialists

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Course Name / Content	Communication Skills Required of Application Specialist
Training Course Level	☐Introductory Course ☐Basic Course ■Advanced Course ☐Special Course
Training Area (Common or Specialty Field)	■Common to Application Specialist ☐Application System ☐Application Package
Outline	Aim: Attendees acquire the following practical skills that are required of Application Specialist and a success factor of any projects: effective and efficient communication with people involved in project. ○The attendees learn, in workshops including role-play, the following important for promotion of medium-sized, large-sized, or complex projects: two-way communication, passing of information, and processing of information.
Attendee	Those who have completed projects and who have results of the projects as leaders or members of application development teams (those who aim to acquire the knowledge of Application Specialist level 4 or 5)
Precondition	Have completed Personal Skill Fundamentals, or possess equivalent knowledge.
Training Method	Workshop
Duration	Standard term: 3 days (classroom)
Learning Goal	Can promote interaction with people involved in a project as a person responsible for or a leader of an application development team by utilizing practical communication skills.

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Skill Items	Knowledge Items
Communication	-2-Way Communication Dialogue and Interview, Information Transfer, Utilization and Practice of Communication Techniques, Utilization and Practice of Effective Speaking and Listening -Transmission of Information Utilization and Practice of Presentation Techniques, Utilization and Practice of Creation of Official and Non-official Documents, Technical Writing, Media Selection, Utilization and Practice of Persuasion Techniques -Organization, Analysis and Retrieval of Information Development and Practice of Status Response Capabilities to Understand Situations, Utilization and Practice of Capabilities to Understand Situations, Utilization and Practice of Meeting Management Techniques

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Negotiation Skills Required of Application Specialists (1 course)

Negotiation Skills Required of Application Specialists

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Course Name / Content	Negotiation Skills Required of Application Specialist
Training Course Level	☐Introductory Course ☐Basic Course ■Advanced Course ☐Special Course
Training Area (Common or Specialty Field)	■Common to Application Specialist ☐Application System ☐Application Package
Outline	Aim: Attendees acquire practical negotiation skills required of Application Specialists important for any situations or scenes in projects. ○About negotiation with people concerned with any scenes or situations in medium-sized, large-sized, or complex projects, the attendees learn and perform role-play in workshops in how to divide negotiation phases into several phases, how to understand expected problems, and how to formulate problem solving solutions with negotiating partners.
Attendee	Those who have completed projects and who have results of the projects as leaders or members of application development teams (those who aim to acquire the knowledge of Application Specialist level 4 or 5)
Precondition	Have completed Personal Skill Fundamentals, or possess equivalent knowledge.
Training Method	Workshop
Duration	Standard term: 3 days (classroom)
Learning Goal	Can build consensus of technical problems as a person responsible for or a leader of an application development team by utilizing practical negotiation skills in project.

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Skill Items	Knowledge Items
Negotiation	-Negotiation Utilization and Practice of Negotiation Process, Utilization and Practice of Effective Negotiation Techniques, Establishment of Trust Relationship, Objectives Setting, Common Interest, Practice of Logical Thinking, Utilization and Practice of Problem Solving Techniques

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Latest Technology Trends (1 course)

●Latest Technology Trends

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Course Name / Content	Latest Technology Trends
Training Course Level	☐Introductory Course ☐Basic Course ☐Advanced Course ■Special Course
Training Area (Common or Specialty Field)	■Common to Application Specialist ☐Application System ☐Application Package
Outline	Aim: Attendees learn the latest technology trends surrounding IT services and acquire knowledge of how to apply the latest technology trends to actual business. ○The attendees learn sizes and trends of IT markets in a domestic country and abroad, present and future IT, and next-generation e-business and its future growth. ○Training contents are provided on given themes according to need, and the attendees select a theme to take part in a lecture for maintaining or improving their skills at regular intervals or when needed.
Attendee	Those who should keep up with their different kinds of technology knowledge as persons responsible for, leaders of, or members of application development teams (those who aim to acquire the knowledge of Application Specialist level 4, 5, or 6)
Precondition	Possess IT knowledge and have experience and results of business application development.
Training Method	Lecture
Duration	Standard term: 1 day (classroom)
Learning Goal	Can participate in projects of system design, system development, system architecture, system operations, and system maintenance as a person responsible for or a leader of an application development team by utilizing knowledge of the latest technology.

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Skill Items	Knowledge Items
Technology	-Latest Technology Trends Understanding of Latest Hardware Technology Trends, Understanding of Latest Middleware Technology Trends, Understanding of Latest Platform Technology Trends, Understanding of Latest Network Technology Trends, Understanding of Latest Database Technology Trends, Understanding of Latest Security Technology Trends, Understanding of Latest System Management Technology Trends -Latest Trends in IT Market Understanding of IT Market Scale and Trends Domestic and Abroad, Understanding and Utilization of Technology Trends Related to Applications, Understanding and Utilization of Technology Trends Related to Business Model Patents, Understanding and Utilization of Next-generation E-business and its Future Growth

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Industry Application Trends (1 course)

●Industry Application Trends

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Course Name / Content	Industry Application Trends
Training Course Level	☐Introductory Course ☐Basic Course ☐Advanced Course ■Special Course
Training Area (Common or Specialty Field)	■Common to Application Specialist ☐Application System ☐Application Package
Outline	Aim: Attendees learn the latest trends in each industry, and acquire knowledge of applications and solutions in the spotlight in order to keep updating knowledge of industry applications changing from day to day. ○Training contents are provided on a given theme of each industry, application, or solution, and the attendees select a theme and take part in a lecture for maintaining or improving their skills at regular intervals or when needed. ○To provide lectures via e-learning type methods is possible; however, to give demonstrations of how applications work at lectures is recommended.
Attendee	hose who should keep up with the latest knowledge including industries that the professionals are working for currently or in the future and application packages utilized in the industries as persons responsible for, leaders of, or members of application development teams (those who aim to acquire the knowledge of Application Specialist level 4, 5, or 6)
Precondition	Have completed Industry Business Operations Fundamentals course group, or possess equivalent knowledge.
Training Method	Lecture or E-learning
Duration	Standard term: 2 days (classroom) or Standard term: 12 hours (e-learning 6 hours/day x 2 days)
Learning Goal	Can participate in a project as a person responsible for or a leader of an application development team by utilizing industry applications knowledge.

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Skill Items	Knowledge Items
Industry Specific Application System Development	-Industry Knowledge Knowledge Utilization of Industry Common Applications, Knowledge Utilization of Industry Specific Applications, Understanding of Industry Business Trend and Technology Trend and Competition Status, Understanding and Utilization of Industry Terms and Relevant Regulations, Understanding and Utilization of Industry Specific Business Environment, Understanding and Utilization of Industry Specific Business Practice, Understanding and Utilization of Industry Specific Business Contents

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Latest Business Trends (1 course)

●Latest Business Trends

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Course Name / Content	Latest Business Trends
Training Course Level	☐Introductory Course ☐Basic Course ☐Advanced Course ■Special Course
Training Area (Common or Specialty Field)	■Common to Application Specialist ☐Application System ☐Application Package
Outline	Aim: Attendees acquire knowledge of the latest business trends. ○Training contents are provided on given themes (e.g., management issues of major industries, topics, IT market trends in domestic and abroad IT markets, and utilization of IT in business) according to need, and the attendees select a theme to take part in a lecture (or via e-leaning) for maintaining or improving their skills at regular intervals or when needed.
Attendee	Those who should keep up with their business trend knowledge in order to understand business environment of customers relevant to projects as persons responsible for, leaders of, or members of application development teams (those who aim to acquire the knowledge of Application Specialist level 4, 5, or 6)
Precondition	Have completed Industry Business Operations Fundamentals course group, or possess equivalent knowledge.
Training Method	Lecture or E-learning
Duration	Standard term: 0.5 day (classroom) or Standard term: 3 hours (e-learning 6 hours/day x 0.5 day)
Learning Goal	Can understand business issues of a customer as a person responsible for or a leader of an application development team by utilizing knowledge of the latest business trends.

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Skill Items	Knowledge Items
Analysis of Business Operations	-Informatization and Management Information Strategy, Corporate Accounting, Management Engineering, Utilization of Information Systems in Engineering System Area and Business System Area, Understanding and Compliance of Relevant Regulations
Technology	-Latest Trends in IT Market Understanding of IT Market Scale and Trends Domestic and Abroad, Understanding and Utilization of Technology Trends Related to Applications, Understanding and Utilization of Technology Trends Related to Business Model Patents, Understanding and Utilization of Next-generation E-business and its Future Growth

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Community Activities (1 course)

●Community Activities

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Course Name / Content	Community Activities
Training Course Level	☐Introductory Course ☐Basic Course ☐Advanced Course ■Special Course
Training Area (Common or Specialty Field)	■Common to Application Specialist ☐Application System ☐Application Package
Outline	Aim: Community activities, unlike trainings, give IT professionals opportunities to learn from one other and contribute to development of subordinates. Community activities are all sorts of activities within or outside companies regardless of any types of organizations. Community activities outside companies are activities in academic conferences or various associations (including voluntary ones), and community activities within companies are, for instance, activities by those certified by certification system in their companies. Basically, a community is made up of one job category. ○Individuals with high-level skills are considered out of learning through trainings, and they are expected to improve their skills by exchanging information and discussing in community activities. ○The individuals contribute to development of subordinates through writing a paper or giving lectures based on their high-level knowledge and skills. Especially in community activities within companies, they lead activities for design, institution, and implementation of personnel system, education system, and training system. They make contribution as IT professionals in business fields to pursuit of human resource development strategies related to business strategies as well.
Attendee	- -
Precondition	- -
Training Method	- -
Duration	- -
Learning Goal	- -

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Application Specialist
Training Course Description
<Specific to Each Specialty Field (Selective Courses)>

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Component Technology Fundamentals (1 course)

[ ] is a corresponding specialty field

●Component Technology Fundamentals [Application System]

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Course Name / Content	Component Technology Fundamentals
Training Course Level	☐Introductory Course ■Basic Course ☐Advanced Course ☐Special Course
Training Area (Common or Specialty Field)	☐Common to Application Specialist ■Application System ☐Application Package
Outline	Aim: This is the subsequent course of System Development Fundamentals course group. Attendees acquire knowledge of component technology of hardware and software, and technology and concepts of applied to various products utilized in information systems in order to keep product knowledge updated for latest hardware and software. ○The attendees learn product knowledge on each field or theme necessary for future job assignment. The attendees select a field or theme at regular intervals or when needed. The contents are: component technology applied in major current hardware, concepts, principles, mechanisms, architecture, advantages / disadvantages of software utilized in variety of information systems, characteristics of the software in usage, design , development, operation perspectives
Attendee	Those who have been involved in projects of business application development or projects of business application development by utilizing application packages before as members of application development teams (those who aim to acquire the knowledge of Application Specialist (specialty field: Application System) level 3)
Precondition	Have completed System Development Fundamentals course group, or possess equivalent knowledge.
Training Method	E-learning
Duration	Standard term: 12 hours (e-learning 6 hours/day x 2 days)
Learning Goal	Can develop a business application independently as a member of an application development team by utilizing fundamental knowledge of component technology.

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Skill Items	Knowledge Items
Analysis of Business Operations	-Industry Knowledge Knowledge Utilization of Industry Common Applications, Knowledge Utilization of Industry Specific Applications, Understanding of Industry Business Trend and Technology Trend and Competition Status, Understanding and Utilization of Industry Terms and Relevant Regulations, Understanding and Utilization of Industry Specific Business Environment, Understanding and Utilization of Industry Specific Business Practice, Understanding and Utilization of Industry Specific Business Contents
Technology	-System Platform Technology Utilization and Practice of Operating System Technology (Mainframe, Distributed Computing Systems (Small Business Computers Proprietary OS), UNIX, WINDOWS, Linux, etc.) -Latest Technology Trends Understanding of Latest Hardware Technology Trends, Understanding of Latest Middleware Technology Trends, Understanding of Latest Platform Technology Trends, Understanding of Latest Network Technology Trends, Understanding of Latest Database Technology Trends, Understanding of Latest Security Technology Trends, Understanding of Latest System Management Technology Trends
Design	-Understanding of Database, Middleware, and Distributed Computing Design Selection of Optimal Database, Middleware, and Distributed Computing, Understanding of Functions and Restrictions of Databases, Middleware, and Distributed Computing, Practice of Application Design utilizing Databases, Middleware, and Distributed Computing
Software Engineering	-Utilization of Development Support Tools Development Environment, Various Application Development Tools, Management Tools, Debugger, Simulator, etc.

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Component Technology Fundamentals - Advanced Level - (6 courses)

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- Platform Component Technology [Application System]
- System Management Infrastructure Component Technology [Application System]
- Database Component Technology [Application System]
- Network Component Technology [Application System]
- Distributed Computing System Component Technology [Application System]
- Security System Component Technology [Application System]

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Course Name / Content	Platform Component Technology
Training Course Level	☐Introductory Course ☐Basic Course ■Advanced Course ☐Special Course
Training Area (Common or Specialty Field)	☐Common to Application Specialist ■Application System ☐Application Package
Outline	Aim: This is one of the courses in Component Technology - Advanced Level - course group, which is the subsequent of Component Technology Fundamentals course group. Attendees acquire knowledge of architecture that determines performance of products consisted of platform components, and component technology applied in the products. ○The attendees learn major hardware products, major system software products, hardware architecture (e.g., multi processors and large capacity storage), the latest hardware devices, component technology trends implemented in system software and middleware (e.g., caching, transaction processing, distributed processing, parallel processing, and virtualization and abstraction of system resources).
Attendee	Those who have been involved in projects of business application development or projects of application system implementation projects by utilizing application packages before as leaders or members of application development teams (those who aim to acquire the knowledge of Application Specialist (specialty field: Application System) level 4 or 5).
Precondition	Have completed Component Technology Fundamentals course group, or possess equivalent knowledge.
Training Method	E-learning
Duration	Standard term: 18 hours (e-learning 6 hours/day x 3 days)
Learning Goal	Can select application technology and solve technical problems as a person responsible for or a leader of an application development team by utilizing knowledge of platform architecture and component technology.

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Skill Items	Knowledge Items
Technology	-Latest Technology Trends Understanding of Latest Hardware Technology Trends, Understanding of Latest Middleware Technology Trends, Understanding of Latest Platform Technology Trends, Understanding of Latest Network Technology Trends, Understanding of Latest Database Technology Trends, Understanding of Latest Security Technology Trends, Understanding of Latest System Management Technology Trends -Platform Technologies Hardware Architecture, Storage Management, Operating Systems, Communications Control, Understanding and Utilization of Transaction Processing and Distribution Processing and Parallel Processing -Product Knowledge (Platforms) Assessment and Selection of Processors and Memory Devices and Printing Devices and Operating Systems and Database Systems and Transaction Systems and Middleware -Understanding and Utilization of Computer System Architectures and Fundamental Technologies

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Course Name / Content	System Management Infrastructure Component Technology
Training Course Level	☐Introductory Course ☐Basic Course ■Advanced Course ☐Special Course
Training Area (Common or Specialty Field)	☐Common to Application Specialist ■Application System ☐Application Package
Outline	Aim: This is one of the courses in Component Technology - Advanced Level - course group, which is the subsequent of Component Technology Fundamentals course group, and helps attendees acquire knowledge of system management architecture for managing operations and maintenance of information systems, important component technology enabling functions of system management, major products for system management. ○The attendees learn architecture of major system management products and components technology implemented in the products, such as server and network monitoring technology, interface technology of management functions of system software and middleware, application performance measurement technology, hardware and software configuration management functions, security technology for user management and risk management, technology trends related to component technology (e.g., storage management). ○To give a demonstration of how products work is recommended.
Attendee	Those who have been involved in projects of business application development or projects of application system implementation projects by utilizing application packages before as leaders or members of application development teams (those who aim to acquire the knowledge of Application Specialist (specialty field: Application System) level 4 or 5).
Precondition	Have completed Component Technology Fundamentals course group, or possess equivalent knowledge.
Training Method	Lecture, Workshop
Duration	Standard term: 5 days (classroom)
Learning Goal	Can select application technology and solve technical problems as a person responsible for or a leader of an application development team by utilizing knowledge of system management architecture and component technology.

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Skill Items	Knowledge Items
Technology	-Latest Technology Trends Understanding of Latest Hardware Technology Trends, Understanding of Latest Middleware Technology Trends, Understanding of Latest Platform Technology Trends, Understanding of Latest Network Technology Trends, Understanding of Latest Database Technology Trends, Understanding of Latest Security Technology Trends, Understanding of Latest System Management Technology Trends -System Management Technologies System Resource Monitoring Technology, Process Monitoring Technology, Interface Technology for System Software and Middleware Management Functions, Performance Measurement Technology, Configuration Management Functions for Hardware and Software, Software Distribution Functions, Job Management Functions, Remote Control Functions, Access Management Functions, User Management Functions, Risk Management Functions, Storage Management Functions -System Management Methods Service Level Management, Issues Management, Performance and Capacity Management, Change Control, Resource Management, Recovery Management, Component Management, Operations Management, Selection and Installation of System Management Tools, Implementation of System Management Requirements, Assessment and Selection of Security Management Products

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Course Name / Content	Database Component Technology
Training Course Level	☐Introductory Course ☐Basic Course ■Advanced Course ☐Special Course
Training Area (Common or Specialty Field)	☐Common to Application Specialist ■Application System ☐Application Package
Outline	Aim: This is one of the courses in Component Technology - Advanced Level - course group, which is the subsequent of Component Technology Fundamentals course group, and helps attendees acquire knowledge of important technology in development of database systems, technology around databases, and trends of database relating technology. ○Explanations of important technology in database system development (distributed databases and database security) and technology around databases and database relating technology trends (e.g., data warehouses, online analysis processing, data mining, object oriented databases, application services by Web, object relational databases, ERP, and EC) are provided ○To provide lectures via e-learning type methods is possible; however, to give a demonstration of how products work at a lecture is recommended.
Attendee	Those who have been involved in projects of business application development or projects of application system implementation projects by utilizing application packages before as leaders or members of application development teams (those who aim to acquire the knowledge of Application Specialist (specialty field: Application System) level 4 or 5)
Precondition	Have completed Component Technology Fundamentals course group, or possess equivalent knowledge.
Training Method	Lecture or E-learning
Duration	Standard term: 3 days (classroom) or Standard term: 18 hours (e-learning 6 hours/day x 3 days)
Learning Goal	Can select application technology and solve technical problems as a person responsible for or a leader of an application development team by utilizing database knowledge.

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Skill Items	Knowledge Items
Technology	-Latest Technology Trends Understanding of Latest Hardware Technology Trends, Understanding of Latest Middleware Technology Trends, Understanding of Latest Platform Technology Trends, Understanding of Latest Network Technology Trends, Understanding of Latest Database Technology Trends, Understanding of Latest Security Technology Trends, Understanding of Latest System Management Technology Trends -Relationship of Synchronization Points between Transaction Processes and Database -Selection of Database Management System (DBMS) Assessment and Selection of Database Products -Installation of Database Management System (DBMS) Installation and Setting of Database Products -Important Techniques for Database Development Distributed Database, Database Security, Distributed Computing Systems, DBMS -Database Related Technology Data Warehouses and On-line Analysis Processing and Data Mining and Object-oriented and Database and Internet and DBMS -Database Related Technology Trends Object-oriented Database, Object Relational Database, ERP and Database, SCM and Database, CRM and Database, Understanding and Utilization of EC and Database

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Course Name / Content	Network Component Technology
Training Course Level	☐Introductory Course ☐Basic Course ■Advanced Course ☐Special Course
Training Area (Common or Specialty Field)	☐Common to Application Specialist ■Application System ☐Application Package
Outline	Aim: This is one of the courses in Component Technology - Advanced Level - course group, which is the subsequent of Component Technology Fundamentals course group. Attendees acquire knowledge of important technology in network system development, technology around networks, trends of network-relating technology. ○The attendees learn component technology of network protocols, reliability design, telecommunication services, network equipment, network devices, network services, intranet, and extranet, knowledge of standard or major products and services, advanced network technology, and IT strategy trends utilizing networks.
Attendee	Those who have been involved in projects of business application development or projects of application system implementation projects by utilizing application packages before as leaders or members of application development teams (those who aim to acquire the knowledge of Application Specialist (specialty field: Application System) level 4 or 5)
Precondition	Have completed Component Technology Fundamentals course group, or possess equivalent knowledge.
Training Method	Lecture or E-learning
Duration	Standard term: 3 days (classroom) or Standard term: 12 hours (e-learning 6 hours/day x 2 days)
Learning Goal	Can select application technology and solve technical problems as a person responsible for or a leader of an application development team by utilizing network knowledge.

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Skill Items	Knowledge Items
Technology	-Latest Technology Trends Understanding of Latest Hardware Technology Trends, Understanding of Latest Middleware Technology Trends, Understanding of Latest Platform Technology Trends, Understanding of Latest Network Technology Trends, Understanding of Latest Database Technology Trends, Understanding of Latest Security Technology Trends, Understanding of Latest System Management Technology Trends -Network System Technology Trends Understanding of Large Scale Networking (Broadband ISDN, Optical Networks, Telephone Cables, Wireless Networks, Backbone Networking) Technology Trends, Understanding of Hi-speed LAN (DQDB, Gigabit Ethernet) Technology Trends, Understanding of Communications Services (Gigabit Ethernet, Continuous Connection Services, Area IP Networks) Technology Trends -Knowledge of Network Products Knowledge Utilization of Network Products -Network Standards Understanding and Usage of Network Standards -Network System Implementation Technology Network Protocols and Telecommunications Services and Network Equipment and Devices and Network Services and Intranet and Extranet

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Course Name / Content	Distributed Computing System Component Technology
Training Course Level	☐Introductory Course ☐Basic Course ■Advanced Course ☐Special Course
Training Area (Common or Specialty Field)	☐Common to Application Specialist ■Application System ☐Application Package
Outline	Aim: This is one of the courses in Component Technology - Advanced Level - course group, which is the subsequent of Component Technology Fundamentals course group. Attendees acquire knowledge of important component technology that configure environment of application execution in distributed computing systems, standardization trends, and major products. ○Explanations of the following are provided. -Platforms as application execution infrastructure -Clients -Comparison of server methods with Web application methods -Web server techniques and session management methods -Server load distribution systems -Cipher systems for authentication and communication data -Development techniques utilizing servlet, JSP, or JavaBeans, and development environment -Methods (e.g., message processing) for system linkage -Technology trends related to large scale applications techniques and products ○To provide lectures via e-learning type methods is possible; however, to give a demonstration of how products work at a lecture is recommended.
Attendee	Those who have been involved in projects of business application development or projects of application system implementation projects by utilizing application packages before as leaders or members of application development teams (those who aim to acquire the knowledge of Application Specialist (specialty field: Application System) level 4 or 5)
Precondition	Have completed Component Technology Fundamentals course group, or possess equivalent knowledge.

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Course Name / Content	Distributed Computing System Component Technology
Training Course Level	☐Introductory Course ☐Basic Course ■Advanced Course ☐Special Course
Training Area (Common or Specialty Field)	☐Common to Application Specialist ■Application System ☐Application Package
Training Method	Lecture or E-learning
Duration	Standard term: 3 days (classroom) or Standard term: 18 hours (e-learning 6 hours/day x 3 days)
Learning Goal	Can select application technology and solve technical problems as a person responsible for or a leader of an application development team by utilizing knowledge of distributed computing component technology and products.

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Skill Items	Knowledge Items
Technology	-Latest Technology Trends Understanding of Latest Hardware Technology Trends, Understanding of Latest Middleware Technology Trends, Understanding of Latest Platform Technology Trends, Understanding of Latest Network Technology Trends, Understanding of Latest Database Technology Trends, Understanding of Latest Security Technology Trends, Understanding of Latest System Management Technology Trends -Understanding and Utilization of Network Technologies Protocols and Transmission Control, Encoding and Transmission, Network Related Regulations, Network Security, Communications Equipment, Network Software, Technology for Lines such as ATM, Frame Relay, LAN, WAN -Middleware Technologies Messaging Technology, Internet Technology, Distributed Object Management, Directory Services, Transaction Processing -Server Placement Techniques Utilization and Practice of Server Placement Techniques -Application Execution Method Understanding and Utilization of Web Application Methods and Distributed Computing Methods -Server Technology Understanding and Utilization of Technology for HTTP Servers and Application Servers and Load Distribution Servers -Load Distribution and Availability Load Distribution (Hardware, Software), Clone, Clustering, Network Duplexing -Distributed Computing Development Environments Utilization and Practice of Distributed Computing Development Tools, Utilization and Practice of Development Environment and Standards and Tools of Distributed Computing such as Servlet and JSP and JavaBeans, Utilization and Practice of Development Tools, Understanding and Utilization of Application Development Process and Characteristics -User Interface Technology Understanding and Utilization of Web Browser Technology, Understanding and Utilization of Graphical User Interface Technology, Accessibility Functions of Information Systems -Application Security Design, Development and Installation of Application Security Functions -Understanding and Utilization of Security Technologies Single Sign-on Technology, PKI Technology, Security Administration Technology, Intrusion Prevention Technology, Encryption Technology, Electronic Signature Technology, Firewall Technology

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Course Name / Content	Security System Component Technology
Training Course Level	☐Introductory Course ☐Basic Course ■Advanced Course ☐Special Course
Training Area (Common or Specialty Field)	☐Common to Application Specialist ■Application System ☐Application Package
Outline	Aim: This is one of the courses in Component Technology - Advanced Level - course group, which is the subsequent of Component Technology Fundamentals course group. Attendees acquire knowledge of major component technology and methods, major technology trends, and major products, all of which provide security functions. ○The attendees learn authentication methods, cryptographic technology, PKI, intrusion prevention methods, detection methods of intrusion and falsification, entry/exit control system management, data storage media, backup methods, log management methods, computer virus programs, and distribution and management methods of virus signature files. ○To provide lectures via e-learning type methods is possible; however, to give a demonstration of how products work at a lecture is recommended.
Attendee	Those who have been involved in projects of business application development or projects of application system implementation projects by utilizing application packages before as leaders or members of application development teams (those who aim to acquire the knowledge of Application Specialist (specialty field: Application System) level 4 or 5).
Precondition	Have completed Component Technology Fundamentals course group, or possess equivalent knowledge.
Training Method	Lecture or E-learning
Duration	Standard term: 3 days (classroom) or Standard term: 18 hours (e-learning 6 hours/day x 3 days)
Learning Goal	Can select application technology and solve technical problems as a person responsible for or a leader of an application development team by utilizing knowledge of security component technology and products.

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Skill Items	Knowledge Items
Technology	-Latest Technology Trends Understanding of Latest Hardware Technology Trends, Understanding of Latest Middleware Technology Trends, Understanding of Latest Platform Technology Trends, Understanding of Latest Network Technology Trends, Understanding of Latest Database Technology Trends, Understanding of Latest Security Technology Trends, Understanding of Latest System Management Technology Trends -Understanding and Utilization of Security Technologies Single Sign-on Technology, PKI Technology, Security Administration Technology, Intrusion Prevention Technology, Encryption Technology, Electronic Signature Technology, Firewall Technology -Security Technology Trends Understanding of Single Sign-on Technology Trends, Understanding of PKI Technology Trends, Understanding of Security Administration Technology Trends, Understanding of Intrusion Prevention Technology Trends, Understanding and Utilization of Encryption Technology, Understanding and Utilization of Electronic Signature Technology, Understanding and Utilization of Firewall Technology -Implementation and Inspection of Security Systems Selection and Installation of Security Products and Tools, Security System Development, Security Techniques Implementation

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System Design - Advanced Level - (1 course)

[ ] is a corresponding specialty field

●Application System Design - Advanced Level - [Application System]

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Course Name / Content	Application System Design - Advanced Level -
Training Course Level	☐Introductory Course ☐Basic Course ■Advanced Course ☐Special Course
Training Area (Common or Specialty Field)	☐Common to Application Specialist ■Application System ☐Application Package
Outline	Aim: This is a next-level course of System Design course group, and helps attendees acquire design knowledge of advanced application systems that are large-sized, advanced level, mission critical, or using multiple platforms. ○In workshops, attendees view examples of information system design including actual cases to learn points and considerations on complicated or particular design in application system development.
Attendee	Those who have been involved in projects of business application development or projects of application system implementation projects by utilizing application packages before as leaders or members of application development teams (those who aim to acquire the knowledge of Application Specialist (specialty field: Application System) level 4 or 5).
Precondition	Have completed System Design course group, System Development course group, System Operations and Maintenance course group, or possess equivalent knowledge.
Training Method	E-learning, Workshop
Duration	Standard term: 5 days (classroom)
Learning Goal	Can design an advanced application system as a person responsible for or a leader of an application development team by utilizing knowledge of advanced application system design.

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Skill Items	Knowledge Items
Analysis of Business Operations	-Analysis of Technical Requirements Existing IT Environmental Analysis, Understanding of New Technical Requirements, Needs Analysis and Prioritization
Technology	-System Platform Technology Utilization and Practice of Operating System Technology (Mainframe, Distributed Computing Systems (Small Business Computers Proprietary OS), UNIX, WINDOWS, Linux, etc.)
Design	-Understanding of Database, Middleware, and Distributed Computing Design Selection of Optimal Database, Middleware, and Distributed Computing, Understanding of Functions and Restrictions of Databases, Middleware, and Distributed Computing, Practice of Application Design utilizing Databases, Middleware, and Distributed Computing -Understanding and Utilization of Modeling Techniques Utilization and Practice of Data Modeling Techniques, Utilization and Practice of Process Modeling Techniques, Utilization and Practice of Performance Modeling Techniques, Utilization and Practice of Prototyping Techniques, Utilization and Practice of Benchmarking Techniques

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Skill Items	Knowledge Items
Software Engineering	-Design Methods Object-oriented Design, Structural Design, Data-oriented Design -Development Methods Development Method Selection, Utilization and Practice of Development Methods, Waterfall Models, RAD (Rapid Application Development) Models, Spiral Models, Application Package Specific Development Methods -Utilization of Development Support Tools Development Environment, Various Application Development Tools, Management Tools, Debugger, Simulator, etc. -Testing Techniques Test Case Design, Specification Determination, Test Environment Set-up, Management, Test Data Preparation, Test Tool Utilization -Reuse Methods Utilization of Software Components, Deliverables Utilization of Advanced Project, Utilization and Practice of Reuse Methods, Architectural Patterns, Design Patterns, Frameworks, etc. -External Design External Design Procedure, System Function Design, Data Model Design, Creation of External Specifications -Internal Design Function Design, Interface Design, Internal Data Design, Identification and Role-definition of Subcomponents, Relationship Definition among Subcomponents, Creation of Internal Specifications -Object-oriented Development Object-oriented Basic Concept, UML, Object-oriented Development Process, Analysis, Design, Implementation, Main Object-oriented -Program Design Development Techniques and Platform Selection, Program Design Criteria, Creation of Program Specification, Creation of Test Plan and Specifications -Technological Problem Solving Methods Utilization and Practice of Technological Problem Solving Methods

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Skill Items	Knowledge Items
Development of Application Systems	-General Business Contents General Business Contents, Understanding and Utilization of Characteristics, Understanding and Utilization of Industry-specific Standard Technology -Application System Design Understanding and Utilization of Industry Specific Relevant Technology Information, Selection of Industry Specific Optimal Platform, Practice of Industry Specific Application System Design
Industry Specific Application System Development	-Industrial Applications Design Optimum Platform Selection, Practice of Industrial Applications Design -Industry Knowledge Knowledge Utilization of Industry Common Applications, Knowledge Utilization of Industry Specific Applications, Understanding of Industry Business Trend and Technology Trend and Competition Status, Understanding and Utilization of Industry Terms and Relevant Regulations, Understanding and Utilization of Industry Specific Business Environment, Understanding and Utilization of Industry Specific Business Practice, Understanding and Utilization of Industry Specific Business Contents
Project Management	-Project Integration Management Develop Project Charter, Develop Preliminary Project Scope Statement, Develop Project Management Plan, Direct and Manage Project Execution, Monitor and Control Project Work, Integrated Change Control, Close Project -Project Time Management Activity Definition, Activity Sequencing, Activity Resource Estimating, Activity Duration Estimating, Schedule Development, Schedule Control

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System Development - Advanced Level - (1 course)

[ ] is a corresponding specialty field

●Application System Development - Advanced Level -

[Application System]

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Course Name / Content	Application System Development - Advanced Level -
Training Course Level	☐Introductory Course ☐Basic Course ■Advanced Course ☐Special Course
Training Area (Common or Specialty Field)	☐Common to Application Specialist ■Application System ☐Application Package
Outline	Aim: This is a next-level course of System Development course group, and helps attendees acquire development knowledge of advanced application systems consisting of a large-sized platform, a high-level platform, and a mission critical platform, or multiple platforms. ○The attendees deepen their knowledge of middleware and languages, and learn optimal performance tuning, considerations on scalability. Explanations of how to manage progress of business application development and how to perform effective and efficient tests, both of which are more important when sized of information systems are larger, are also provided. ○In the first half, attendees acquire knowledge necessary for information system development work via e-learning type methods, and perform case studies of actual information system development through workshops in the second half.
Attendee	Those who have been involved in projects of business application development or projects of application system implementation projects by utilizing application packages before as leaders or members of application development teams (those who aim to acquire the knowledge of Application Specialist (specialty field: Application System) level 4 or 5).
Precondition	Have completed System Design course group, System Development course group, and System Operations and Maintenance course group, or possess equivalent knowledge.
Training Method	E-learning, Workshop
Duration	[First Half] Standard term: 30 hours (e-learning 6 hours/day x 5 days) [Second Half] Standard term: 5 days (classroom)
Learning Goal	Can develop an advanced application system as a person responsible for or a leader of an application development team by utilizing knowledge of advanced application system development.

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Skill Items	Knowledge Items
Technology	-Programming Languages /Markup Languages Various Languages such as C and C++ and COBOL and Java and UML and HTML and XML, Characteristics of Notation, Usage of Graphical Development Environment
Design	-Development Environment al Design Definition of Development Environmental Requirement, Platform Selection
Software Engineering	-Utilization of Development Support Tools Development Environment, Various Application Development Tools, Management Tools, Debugger, Simulator, etc. -Programming Techniques Various Programming Languages Techniques, Utilization and Practice of Notation -Programming Languages Characteristics of Various Languages such as C and C++ and COBOL and Basic, Development in Graphical Development Environment -Testing Techniques Test Case Design, Specification Determination, Test Environment Set-up, Management, Test Data Preparation, Test Tool Utilization -Reuse Methods Utilization of Software Components, Deliverables Utilization of Advanced Project, Utilization and Practice of Reuse Methods, Architectural Patterns, Design Patterns, Frameworks, etc. -Object-oriented Development Object-oriented Basic Concept, UML, Object-oriented Development Process, Analysis, Design, Implementation, Main Object-oriented Techniques -Utilization of Verification Methods Walk Through and Inspection -Technology Verification Methods Prototyping, Simulation, Modeling -Technological Problem Solving Methods Utilization and Practice of Technological Problem Solving Methods

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Skill Items	Knowledge Items
Project Management	-Project Integration Management Develop Project Charter, Develop Preliminary Project Scope Statement, Develop Project Management Plan, Direct and Manage Project Execution, Monitor and Control Project Work, Integrated Change Control, Close Project Activity Definition, Activity Sequencing, Activity Resource Estimating, Activity Duration Estimating, Schedule Development, Schedule Control Quality Planning, Perform Quality Assurance, Perform Quality Control -Project Risk Management Risk Management Planning, Risk Identification, Qualitative Risk Analysis, Quantitative Risk Analysis, Risk Response Planning, Risk Monitoring and Control

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System Operations / Maintenance - Advanced Level - (1 course)

[ ] is a corresponding specialty field

●Application System Operations / Maintenance - Advanced Level -

[Application System]

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Course Name / Content	Application System Operations / Maintenance - Advanced Level -
Training Course Level	☐Introductory Course ☐Basic Course ■Advanced Course ☐Special Course
Training Area (Common or Specialty Field)	☐Common to Application Specialist ■Application System ☐Application Package
Outline	Aim: This is a next-level course of System Operations and Maintenance course group, and helps attendees acquire system operations and system maintenance knowledge of advanced application systems consisting of large-sized platforms, advanced-level platforms, mission critical platforms, or multiple platforms. ○Explanations of the following are provided: considerations on performing operations and maintenance of advanced information systems, operations techniques and frameworks for preventing system troubles, trouble handling, recovery plan creation, how to use monitoring tools, understanding of information systems from an audit-perspective, techniques for risk management. ○In the first half, attendees learn considerations on advanced information systems in perspectives of operations, maintenance system, tools, and monitoring via e-learning type methods, and perform case studies of actual information system operations and maintenance through workshops in the second half.
Attendee	Those who have been involved in projects of business application development or projects of application system implementation projects by utilizing application packages before as leaders or members of application development teams (those who aim to acquire the knowledge of Application Specialist (specialty field: Application System) level 4 or 5).
Precondition	Have completed System Design course group, System Development course group, and System Operations and Maintenance course group, or possess equivalent knowledge.
Training Method	E-learning, Workshop
Duration	[First Half] Standard term: 60 hours (e-learning 6 hours/day x 10 days) [Second Half] Standard term: 5 days (classroom)
Learning Goal	Can operate and maintain an advanced application system as a person responsible for or a leader of an application development team by utilizing knowledge of advanced application system operations and maintenance.

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Skill Items	Knowledge Items
Technology	-System Management Technologies System Resource Monitoring Technology, Process Monitoring Technology, Interface Technology for System Software and Middleware Management Functions, Performance Measurement Technology, Configuration Management Functions for Hardware and Software, Software Distribution Functions, Job Management Functions, Remote Control Functions, Access Management Functions, User Management Functions, Risk Management Functions, Storage Management Functions
Software Engineering	-Security and Privacy Security Measures (Secret Preservation, Measures for Prevention of Falsification, Intrusion Prevention, Computer Virus, Integrity Measures, Availability Measures, Safety Measures, Social Engineering), Privacy Protection, Risk Management, Guidelines and Relevant Regulations -Implementation and Inspection of Security Systems Selection and Installation of Security Products and Tools, Security System Development, Security Techniques Implementation -Technological Problem Solving Methods Utilization and Practice of Technological Problem Solving Methods
Development of Application Systems	-General Business Contents General Business Contents, Understanding and Utilization of Characteristics, Understanding and Utilization of Industry-specific Standard Technology -Latest General Business Trends Understanding and Utilization of Industry Specific Latest Trends, Understanding and Utilization of Industry Specific System Installation Cases -Industry Knowledge Knowledge Utilization of Industry Common Applications, Knowledge Utilization of Industry Specific Applications, Understanding of Industry Business Trend and Technology Trend and Competition Status, Understanding and Utilization of Industry Terms and Relevant Regulations, Understanding and Utilization of Industry Specific Business Environment, Understanding and Utilization of Industry Specific Business Practice, Understanding and Utilization of Industry Specific Business Contents

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Skill Items	Knowledge Items
Project Management	-Project Integration Management Develop Project Charter, Develop Preliminary Project Scope Statement, Develop Project Management Plan, Direct and Manage Project Execution, Monitor and Control Project Work, Integrated Change Control, Close Project -Project Time Management Activity Definition, Activity Sequencing, Activity Resource Estimating, Activity Duration Estimating, Schedule Development, Schedule Control -Project Risk Management Risk Management Planning, Risk Identification, Qualitative Risk Analysis, Quantitative Risk Analysis, Risk Response Planning, Risk Monitoring and Control

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System Development Methodology (1 course)

[ ] is a corresponding specialty field

●Application System Development Methodology

[Application System]

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Course Name / Content	Application System Development Methodology
Training Course Level	☐Introductory Course ☐Basic Course ■Advanced Course ☐Special Course
Training Area (Common or Specialty Field)	☐Common to Application Specialist ■Application System ☐Application Package
Outline	Aim: This course helps attendees acquire methodology knowledge important in application system development. ○The attendees learn, in order to understand a whole application system development process, a concept of development life cycle, application development models (e.g., waterfall model and spiral model), and roles of each development phase, what to be done in each process in each development phase. The attendees also learn a concept of and techniques for risk management necessary for reducing risks.
Attendee	Those who have been involved in projects of business application development or projects of application system implementation projects by utilizing application packages before as leaders or members of application development teams (those who aim to acquire the knowledge of Application Specialist (specialty field: Application System) level 4 or 5)
Precondition	Have completed System Design course group, System Development course group, and System Operations and Maintenance course group, or possess equivalent knowledge.
Training Method	E-learning, Workshop
Duration	[First Half] Standard term: 30 hours (e-learning 6 hours/day x 5 days) [Second Half] Standard term: 5 days (classroom)
Learning Goal	Can create application system methodology as a person responsible for or a leader of an application development team by utilizing methodology knowledge of application systems.

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Skill Items	Knowledge Items
Analysis of Business Operations	-Analysis of Business Operation Requirements Understanding of User Needs, Needs Analysis and Prioritization -Analysis of Technical Requirements Existing IT Environmental Analysis, Understanding of New Technical Requirements, Needs Analysis and Prioritization
Design	-Requirement s Definition Clarification of User Demands and Project Scope and Objectives, Project Prioritization and Coordination with Related Departments, Implementation of Requirement Investigation, Requirements Definition and Documentation, Resource Request Investigation, Systemization Planning -Understanding and Utilization of Modeling Techniques Utilization and Practice of Data Modeling Techniques, Utilization and Practice of Process Modeling Techniques, Utilization and Practice of Performance Modeling Techniques, Utilization and Practice of Prototyping Techniques, Utilization and Practice of Benchmarking Techniques
Software Engineering	-Security and Privacy Security Measures (Secret Preservation, Measures for Prevention of Falsification, Intrusion Prevention, Computer Virus, Integrity Measures, Availability Measures, Safety Measures, Social Engineering), Privacy Protection, Risk Management, Guidelines and Relevant Regulations
Development of Application Systems	-Business Environment Understanding and Utilization of Industry Specific Business Environment, Understanding and Utilization of Social Environments, Understanding and Utilization of Industry Specific Relevant Regulations, Understanding and Utilization of Industry Specific Regulatory Status, Understanding and Utilization of Convention -General Business Contents General Business Contents, Understanding and Utilization of Characteristics, Understanding and Utilization of Industry-specific Standard Technology -Application System Design Understanding and Utilization of Industry Specific Relevant Technology Information, Selection of Industry Specific Optimal Platform, Practice of Industry Specific Application System Design

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Skill Items	Knowledge Items
Project Management	-Project Integration Management Develop Project Charter, Develop Preliminary Project Scope Statement, Develop Project Management Plan, Direct and Manage Project Execution, Monitor and Control Project Work, Integrated Change Control, Close Project -Project Time Management Activity Definition, Activity Sequencing, Activity Resource Estimating, Activity Duration Estimating, Schedule Development, Schedule Control -Project Quality Management Quality Planning, Perform Quality Assurance, Perform Quality Control -Project Risk Management Risk Management Planning, Risk Identification, Qualitative Risk Analysis, Quantitative Risk Analysis, Risk Response Planning, Risk Monitoring and Control

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Application Package Fundamentals (1 course)

[ ] is a corresponding specialty field

●Application Package Fundamentals [Application Package]

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Course Name / Content	Application Package Fundamentals
Training Course Level	☐Introductory Course ■Basic Course ☐Advanced Course ☐Special Course
Training Area (Common or Specialty Field)	☐Common to Application Specialist ☐Application System ■Application Package
Outline	Aim: Attendees acquire knowledge of application package and fundamental knowledge of various technology and concepts implemented in the application packages, both of which are important for development of application systems by utilizing application packages. ○The attendees learn application packages utilized currently in various industries, concepts, principles, mechanisms, and configurations implemented in the application packages, advantages and disadvantages of the application packages, how to use the application packages, implementation scope of the application packages, and considerations on usage of the application packages. ○Training contents are provided on a field, product, or theme, and the attendees select the field, product, or theme according to need. ○Because technology and products of application packages become obsolete due to upgrading or new software, to keep knowledge of the application packages updated after taking this course is necessary. ○To provide lectures via e-learning type methods is possible; however, to give a demonstration of how application packages work at a lecture is recommended.
Attendee	Those who have been involved in projects of business application development or projects of application system development by utilizing application packages before as leaders or members of application development teams (those who aim to acquire the knowledge of Application Specialist (specialty field: Application Package) level 3).
Precondition	Have completed System Development Fundamentals course group, or possess equivalent knowledge.
Training Method	E-learning or Lecture, Workshop
Duration	Standard term: 18 hours (e-learning 6 hours/day x 3 days) or Standard term: 3 days (classroom)
Learning Goal	Can apply, operate, and maintain an application package independently as a member of a business application development team by utilizing fundamental knowledge of application packages.

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Skill Items	Knowledge Items
Analysis of Business Operations	-Industry Knowledge Knowledge Utilization of Industry Common Applications, Knowledge Utilization of Industry Specific Applications, Understanding of Industry Business Trend and Technology Trend and Competition Status, Understanding and Utilization of Industry Terms and Relevant Regulations, Understanding and Utilization of Industry Specific Business Environment, Understanding and Utilization of Industry Specific Business Practice, Understanding and Utilization of Industry Specific Business Contents
Technology	-System Platform Technology Utilization and Practice of Operating System Technology (Mainframe, Distributed Computing Systems (Small Business Computers Proprietary OS), UNIX, WINDOWS, Linux, etc.) -Latest Technology Trends Understanding of Latest Hardware Technology Trends, Understanding of Latest Middleware Technology Trends, Understanding of Latest Platform Technology Trends, Understanding of Latest Network Technology Trends, Understanding of Latest Database Technology Trends, Understanding of Latest Security Technology Trends, Understanding of Latest System Management Technology Trends
Design	-Understanding of Database, Middleware, and Distributed Computing Design Selection of Optimal Database, Middleware, and Distributed Computing, Understanding of Functions and Restrictions of Databases, Middleware, and Distributed Computing, Practice of Application Design utilizing Databases, Middleware, and Distributed Computing -Industrial Package Design Optimal Industrial Package Selection, Understanding of Industrial Package Functions and Restrictions, Practice of Application Design Utilizing Industrial Packages
Software Engineering	-Utilization of Development Support Tools Development Environment, Various Application Development Tools, Management Tools, Debugger, Simulator, etc.

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Skill Items	Knowledge Items
Development of Application Systems Utilizing Application Packages	-Latest Trends of Application Package Understanding of Latest Trends on Application Package Technology, Understanding and Utilization of Status for Competing Products, Understanding and Utilization of Installation Cases -Implementation Design of Application Package Selection of Optimal Application Packages, Understanding of Application Package Functions and Restrictions, Design of Application Package Implementation Scope -Development Method of Application Package Implementation Utilization and Practice of Development Methods for Application Package Implementation

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Application Package Installation (By Product) (1 course)

(Based on training contents of each application package by its provider/related company)

[ ] is a corresponding specialty field

●Application Package Installation (By Product) [Application Package]

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Course Name / Content	Application Package Installation (By Product)
Training Course Level	☐Introductory Course ☐Basic Course ■Advanced Course ☐Special Course
Training Area (Common or Specialty Field)	☐Common to Application Specialist ☐Application System ■Application Package
Outline	Aim: This is a high-level course of Application Package Fundamentals course group. Attendees acquire product specific knowledge for design, construction, and installation of application systems by participating in training of providers of application packages such as ERP, SCM, or CRM. ○The attendees learn the following specific to the products of the application packages by utilizing major application packages: methodologies, development languages, various tools, API, and performance tuning methods. ○Training methods in this course are vary from training service to training service, but generally training contents are provided in both lectures and exercises. The training contents also differ according to products, and the attendees select a proper training service as necessary.
Attendee	Those who have been involved in projects of application development or projects of application system implementation projects by utilizing application packages before as leaders or members of application development teams (those who aim to acquire the knowledge of Application Specialist (specialty field: Application Package) level 4 or 5).
Precondition	Have completed System Design course group, System Development course group, and System Operations and Maintenance course group, or possess equivalent knowledge.
Training Method	Based on training methods prepared by manufacturers or companies of application package products
Duration	Based on training methods prepared by manufacturers or companies of application package products
Learning Goal	Can apply, operate, and maintain of application package as a person responsible for or a leader of an application development team by utilizing knowledge specific to a product of an application packages.

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Skill Items	Knowledge Items
Development of Application Systems Utilizing Application Packages	-Latest Trends of Application Package Understanding of Latest Trends on Application Package Technology, Understanding and Utilization of Status for Competing Products, Understanding and Utilization of Installation Cases -Implementation Design of Application Package Selection of Optimal Application Packages, Understanding of Application Package Functions and Restrictions, Design of Application Package Implementation Scope, Practice of Application Package Implementation Determination, Practice of Man-hour Estimation for Customized Application Packages, Practice of Application Design Utilizing Application Packages -Selection of Runtime Environment for Application Package Practice of Optimal Platform and Vendor Selection -Installation of Application Package Environment Setting -Performance Tuning of Application Package Utilization and Practice of Performance Tuning Methods (Trace, Debugging, Problem Identification, Problem Solving, Route Optimization Method, etc.) -Development Method of Application Package Implementation Utilization and Practice of Development Methods for Application Package Implementation

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