INFORMATION SCIENCE AND ENGINEERING

1. PURPOSE OF THE COURSE

Refer to the each sub-course.

*The each sub-course is related with the concept “Advanced Information Technology Research”.

2. TRAINING PROGRAM

(1) Briefing, General Orientation and Japanese Language Program

Briefing, The General Orientation and Japanese Program are organized at the Chubu International Center of JICA prior to the technical training, to assist participants in understanding Japan and adjusting themselves to life in Japan, and thus to facilitate effective training.

(2)Technical Training

Refer to the each sub-course. (Total: five sub-courses)

3. NUMBER OF PARTICIPANTS TO BE ENROLLED

Maximum 6 persons

4. TRAINING DURATION

From March 11, 2013 to October 26, 2013

(1) Briefing

March 12, 2012

(2) General Orientation

From March 13, 2013 to March 15, 2013

(3) Japanese Language Program

From March 18, 2013 to May 2, 2013

(4) Technical Training

From May 7, 2013to October 25, 2013

5. TRAINING INSTITUTION

(1) Briefing / General Orientation / Japanese Language Program

▼Chubu International Centre (JICA Chubu), JICA

4-60-7, Hiraike-cho, Nakamura-ku, Nagoya, Aichi, 453-0872, Japan

Tel: +81(*)-52(**)-533-0220 Fax: +81(*)-52(**)-564-3751

URL: http://www.jica.go.jp/english/contact/domestic/

(2)Technical Training

▼Kansai International Center (JICA Kansai), JICA

1-5-2, Wakinohama-Kaigan-dori, Chuo-ku, Kobe, Hyogo, 651-0073, Japan

Tel: +81(*)-78(**)-261-0341 Fax: +81(*)-78(**)-261-0342

URL: http://www.jica.go.jp/english/contact/domestic/

(*) country code of Japan (**) area code

6. CONDITIONS OF APPLICATION

(1)Applicants should have graduate degree in a certain scientific or engineering educational course of a university or an institute of technology, showing the certified list of subject items with the marks obtained in each subject.

(2)Applicants should have an adequate ability in English conversation to be able to perform satisfactorily in the course. (TOEFL score: more than 490)

(3)Applicants should be good in health, both physically and mentally, to undergo the training; pregnancy is regarded as a disqualifying condition for participation in the training.

(4)Applicants should not be presently serving in the military.

7. APPLICANTS MUST SUBMIT ANNEX WITH THE APPLICATION DOCUMENTS

(1)Applicants should submit the certified list of subject items with the marks obtained in each subject issued by a university or an institute of technology.

(2)Applicants should decide their order of preference 1^{st} ~ 5^{th} from the following five sub-courses. Once an applicant decides, he/she should write the order of preference in annex sheet. This will be used only as a reference for the screening committee.

Note: Applicants should be capable enough to pursue any of the sub-courses in order for the training institute to have a wider range of decision on screening. This is why any lack of preferences may result in an unsatisfactory application.

(3)Applicants are required to answer the questions on annex sheet.

Sub-course Title: Distributed Software Integration and Applications for Internet

Purpose of the Course:

The participants are expected to have experiences on Internet system integration and programming for concurrency and distributed objects.

For example, the participant will have an experience of designing a (prototyped) Web system, installing open source software, and programming to implement the system.

Course Description:

Designing a prototyped system:

Examples are: Scheduling management; Customer support; Education support; and Sensor network systems.

Integrating open software (suggested)

(1) Web server e.g., Apache, Tomcat
(2) Database, e.g., MySQL, PostGreSQL
(3) Language processors, e.g. Java, PHP, etc.
(4) IDE tool: Eclipse (optional)

Programming and debugging

(1) Programming using Java Servlets, JDBC, and JSP; otherwise,
(2) Programming using J2EE frameworks (such as JBoss, Structs, Hybernate, etc.), otherwise
(3) Rapid agile programming using Light-weight Languages (LL), such as PHP, Perl, Python, Ruby etc, and their frameworks (Ruby on Rails, Django, TurboGears for Python)
(4) Other methodologies, if proposed, are left for discussions.

Hardware and software environment:

(1) A desktop computer of exclusive use for development
(2) A laptop computer of exclusive use for development
(3) Other desktop/laptops are available for debugging
(4) Basically free software is recommended,
(5) Multimedia tools on Windows (Vista/XP) to be purchased, if needed.

Sub-course Title: Java Applications on the Internet

Purpose of the Course:
The participants are expected to know fundamental technologies necessary for constructing the internet system and how to create applications (e.g. Disaster Mitigation Systems on Internet) which extensively use the technologies.

Course Description:
The participants learn technologies of Internet system including following concepts.
(1)WWW, HTML, XML, Ajax
(2)JAVA, JavaBeans, JSP
(3)Database
(4)GIS on Internet (Practical application of Google maps by Ajax)
(5)Application programming on Internet

Hardware and Software Environment:
(1)Workstations: alpha machine, Linux server
(2)Personal computers: Windows XP/Vista and Linux
(3)Computer software
- Java, C/C++, Jbuider5
- Database (Oracle, MySQL, PostGreSQL)
- GIS system

Sub-course Title: Intelligent Systems Design

Purpose of the Course:
The participants are expected to learn design methodologies for intelligent systems by applying artificial intelligence (AI) technologies.

Course Description:
Suggested projects include the following steps:
(1)Intelligent robots: robot control, bio-instrumentation, and other intelligent robotics technologies
(2)Fuzzy systems: fuzzy logic and artificial neural net, and their applications
(3)Intelligent computer systems: expert systems, knowledge acquisition, game programming, and others.

Hardware Environment:
- Windows-XP/Vista workstations
- Robots (e.g., AIBO)
- bio-instrumentation systems

Software tools:
- Java, C/C++, other softwares

Sub-course Title: Multimedia Technology

Purpose of the Course:
Multimedia means the computer technology which deals with various information including texts, (movie) pictures and sounds together with the media which store or communicate these data. This technology is very important for the advanced human computer interaction, for example Web site construction to make the Web pages attractive and easy to understand. The aim of this course is to learn first the basics of multimedia technology and then construct some application including various multimedia applications which is useful for some purpose. Mixed reality and augmented reality technologies are also included in this course.

Course Description:
Possible programs for this course may be as follows, though it will be changed according to the background and purpose of the student:

- Basics of Multimedia Technology

  Meaning of multimedia, audio technology, video technology
- PC Architecture for multimedia applications

  Study of the multimedia functions of MS Windows (multimedia device type, media control interface, capturing audio data, capturing video data etc.)
- Authoring Technique

  Authoring tools, screen and objects, Events and actions, script programming.
- Project to develop a multimedia application

  Project design, collecting multimedia data, programming and assembling,
- Real-time visualization techniques, including modeling of human body, 3D city, texturing for rendering such models

(3) Hardware and Software environments
OS: Solaris, Linux, Windows XP/Vista, and others
Softwares: visualization tools for 3D graphics, programming kit for mixed reality
Exclusive use of a desktop computer for the project study

Sub-course Title: Dynamic Contents Management System for e-Learning

Purpose of the Course:
The purpose of this course is two-fold: (1) to understand the mechanism of the Dynamic Contents Management System (henceforth, DCMS), making use of databases such as XMLDB and RDB and (2) to develop such a system based on promising instructional design theories and e-learning theories according to one chosen area of your interest.

Prerequisite:
Students who are interested in this sub-course are expected to know network, various types of databases, the development as well as the management of the Web database applications using server-side programming as well as the client-side programming. The concepts such as ODBC and JDBC are important in this course.

It would be a great advantage if the student is familiar with some instructional design theories and inferential statistics to evaluate the developed system in terms of learning effectiveness.

Further, in order to implement the visualization and interactivity in such a DCMS, some prior skills to manipulate such multimedia contents as interactive computer graphics animation, streamed videos, graphics/animation tools such as FLASH, Director, MAYA, or QED would provide the student with a great start.

Course Description:
The course includes the following aspects:
(1)Understanding the concept of learning objects as well as the Content Management System
(2)Understanding how to implement interactivity and multimedia in CMS.
(3)Understanding some promising instructional design theories
(4)Understanding the basics of how the network/Internet works
(5)Understanding how to make use of databases in CMS
(6)Understanding the server-side (Web database application) as well as the client-side programming

Note: Based on prior knowledge level of the student, the items above will be rearranged or reorganized to maximize the learning effect.

ANNEX

Japan –Mexico Exchange Program JFY2012-2013

Full Name	
Where to contact	Tel. Fax. Email.
TOEFL Score	

Please refer to the course information and write your order of first to sixth preference below.

Sub-course title	Your order
Distributed Software Integration and Applications for Internet	
Java Applications on the Internet	
Logic Systems Design	
Multimedia Technology for Internet	
Web Programming for Earth Image Data Base	
Dynamic Contents Management System for e-Learning	

Describe the subject of your interest and explain what kind of skill you want to acquire through this course.
Write your work experience
To participate in this course, □ I quit my job □ I keep my position at work □ Others ( )
Explain how you would like to use your training experience on your return.
Introduce yourself

You must attach the certified list of subject items with the marks obtained in each subject issued by the university or institute of technology that you graduated from.