

B-TopSE Architecture Course syllabus and ToT (Training of Trainers) participation requirements

The JICA project "ICT Engineers Development for the Promotion of the ICT Industry and New Innovations" is supporting the creation of a human resource development system for senior members of the Bangladesh ICT industry, utilizing ICT educational content developed by the Japanese IT industry and academia, named TopSE (Top Software Engineer).

The TopSE project is providing the world's highest level of software engineering education and has been receiving high acclaim for its practical contents in Japan.

In the JICA project, in collaboration with BCC and BASIS, we are customizing the TopSE architecture course for Bangladesh and will develop it as the B-TopSE Architecture Course. Therefore, we will conduct Training of Trainers (ToT) to train instructors for the B-TopSE Architecture Course.

We will show you the syllabus of the TopSE Architecture Course and the requirements expected of ToT participants, so please consider getting involved in this project with these in mind. We are waiting for participation from people who are aspiring to become future super architects.

1. Syllabus of B-TopSE Architecture Course

The architecture course will follow the syllabus below. Instructors are expected to reach a level at which they can teach the content.

- a. Title
Object-Oriented Analysis and Design (Series: Architecture, Number of Lectures: 8)
- b. Summary
This course will teach object-oriented analysis and design and prerequisite knowledge for the TopSE lectures and the Architecture series. Using an airline reservation system as an example, you will acquire specific procedures for analyzing and designing software based on the ICONIX object-oriented development process utilizing UML. You can expect to deepen your understanding of object-oriented development through exercises and discussions and gain practical know-how of the analysis and design process.
- c. Contents
In this course, you will learn the procedures of ICONIX, a lightweight object-oriented development process. ICONIX is a use case-driven object-oriented development process that provides specific guidelines for extracting objects and analyzing interactions (robustness analysis) necessary to realize functional requirements summarized as use cases in object-oriented software.

- d. Preparation
Participants in this course are expected to know object-oriented concepts and object-oriented programming.
- e. Notice
The course will provide an overview of creating the principal UML diagrams, but you are expected to study the details independently using reference books and other resources.
- f. Lectures (90 minutes each)
 - Lecture 1: Object-Oriented Analysis and Design
 - Lecture 2: UML - Structural Aspects
 - Lecture 3: UML - Behavioral Aspects
 - Lecture 4: UML Description Exercises
 - Lecture 5: Introduction to ICONIX and Domain Analysis
 - Lecture 6: Domain Analysis Exercises
 - Lecture 7: System Analysis
 - Lecture 8: System Analysis Exercises and Summary
- g. Evaluation
Evaluation will be based on the report.
- h. Textbook
D. Rosenberg and K. Scott: Use Case Driven Object Modeling with UML, Addison Wesley, 2000.

2. requirements expected of ToT participants.

The architecture course will follow the syllabus above, Instructors will be expected to reach a level where they can teach the content. ToT participants are expected to have the following qualifications:

- a. Programming Words and Understanding
 - Programming: Use of one or more programming languages with language specifications such as classes (UML, Java, C++, TypeScript, Python, Ruby, PHP)
- b. Logical Thinking
 - Software engineering: Have experience developing software from scratch regardless of scale
- c. Modeling
 - Object-oriented: Understanding of the minimum concepts necessary to learn object-oriented, such as inheritance and encapsulation
 - Software architecture: Ability to break down and understand the components that makeup software

Test for B-TopSE: The Architecture Course provides tests to measure the knowledge, capacity, and skills required to participate in the ToT of the B-TopSE Architecture Course. Please use these tests to consider participating in the ToT.