

## Specialized Programme on e-Governance Application Development

A. NAME OF INSTITUTE	Centre For Development of Advanced Computing
B. NAME/TITLE OF THE COURSE	Specialized Programme on e-Governance Application Development
C. COURSE DATES WITH DURATION IN WEEKS	<b>From July 25<sup>th</sup> , 2011 to Oct 14<sup>th</sup> ,2011 In weeks: 12 Weeks</b>
<p>D. ELIGIBILITY CRITERIA FOR PARTICIPANTS:</p> <p>1. EDUCATIONAL QUALIFICATIONS</p> <p>2. WORK EXPERIENCE required, if any</p> <p>3. AGE LIMIT</p> <p>4. Target Group [<i>Level of participants and target ministries/departments etc. may be indicated</i>]</p>	<p>1) Two years Technical Course or Graduate in any stream after 12 years of Schooling. Knowledge of any programming language is desirable</p> <p>2) -----</p> <p>3) -----</p> <p>4) Should meet the above educational requirements and should know English language</p>
E. AIMS AND OBJECTIVES OF THE COURSE	<p><u>Objective:</u></p> <ul style="list-style-type: none"> <li>• To make the participants aware about e-Governance, it's potential benefits, various standards and it's impact towards common man/corporate.</li> <li>• Participants would be made aware of use of various software tools/ programming languages for developing modules of e-Governance Application.</li> </ul>
F. MODE OF EVALUATION OF PERFORMANCE OF THE TRAINEE	Lab Work and Project Work

## **Objective:**

At the end of the course, Students will be able to:

- To understand about e-Governance, it's potential benefits, various standards and it's impact towards common man/corporate.
- Participants would be able to make use of various software tools/ programming languages for developing modules of e-Governance Application.

## **Course Content**

### **1. Introduction to e-Governance**

- E-Government : Definition and Scope
- E-Government for Developing Countries
- Potential Benefits of E-Government
- Guidelines for Implementing E-Government Projects
- Impact Assessment of E-Government Projects
- Case Studies in E-Government

### **2. Introduction to OOAD for Java Developers**

### **3. Fundamental Programming Structures in Java**

- The main() method
- Primitive Data Types
- Variables
- Constants
- Assignments
- Initializations
- Operators
- Strings
- Control Flow
- Code Examples & Exercises

### **4. Classes and Objects in Java**

- Classes & Objects
- OOP Principles

- Instantiation
  - Encapsulation
  - Specialization
- 
- Instance Variables
  - Class Variables
  - Constructors
  - Instance Methods
  - Class Methods
  - Method Overloading
  - The **this** keyword
  - Passing and returning objects
  - Garbage Collection in Java
  - Code Examples & Exercises

## **5. Object Design and Programming with Java**

- Abstraction
- Inheritance
- Polymorphism
- Method Overriding
- Associations
- Delegation

## **6. Java Interfaces**

- Purpose of Interfaces
- When to use them
- Interface Declaration
- Implementing an Interface
- Interface Inheritance

## **7. Java Exception Handling**

- Why Exceptions
- Standard Exception Handling Options
- Exception Class Hierarchy
- Checked vs. Unchecked Exceptions
- Catching an Exception: try and catch blocks
- Methods Which Throw Exceptions: the throws clause
- Handling vs. Declaring Exceptions
- System Exceptions vs. Application Exceptions
- Writing Custom Exceptions

## 8. Java Collections API

- Arrays
- The Java Collections Framework
- Collections Interfaces
  - java.util.Collection
  - java.util.List
  - java.util.Map
  - java.util.Set
- Concrete Collections
  - java.util.ArrayList
  - java.util.HashMap
  - java.util.HashSet
- Iterating through Collections
  - java.util.Iterator

## 9. Java Input/Output API

- Streams & Files
- Input & Output Streams
- File Streams
- Object Streams
- Object Serialization
- Readers & Writers
- The Java New I/O API

## 10. SQL/PLSQL

- Database Management Concepts
- **SQL**: Create, Alter, Integrity Constraints( Primary Key, NOT NULL, Foreign Key, Unique Key, Check Constraints), Insert
- **SQL**: Select, Update Delete, Drop, Alter, Order by, Group by
- **SQL**: Single Row Function, Group Function, Having
- **SQL**: Index, Sequences, Commit, Rollback, Savepoint
- **SQL**: Merge, Insert clause & Enhanced Features
- **PL/SQL**: PL/SQL Block, Variables
- **PL/SQL**: Writing the DML Statement, Cursors
- **PL/SQL**: Triggers, Functions, Packages

## **11. JDBC**

- Introduction to JDBC
- The Java, SQL Package
- Connecting to the Database
- Working with Connections
- Working with Results
- Working with Statements

## **12. Java Servlets**

- Introduction to Servlets
- Java Web Server / Tomcat / Weblogic
- Servlet Navigation
- Server – side includes

## **13. Java Beans**

- Introduction to Java Beans
- The Java Beans Component Architecture
- Creating Beans

## **14. JSP**

- Introduction to JSP
- Difference Between Servlet & JSP
- Basic tag of JSP
- JSP with JDBC
- JSP with JAVA BEAN

## **15. Project Work**

### **Eligibility Criteria:**

Two years Technical Course or Graduate in any stream after 12 years of Schooling. Knowledge of any programming language is desirable