Specialized Programme on Application Development using GIS & Remote Sensing

A. NAME OF INSTITUTE	Centre For Development of Advanced Computing
B. NAME/TITLE OF THE COURSE	**Specialized Programme on Application Development using GIS & Remote Sensing**
C. COURSE DATES WITH DURATION IN WEEKS	**From Feb 6th , 2012 to Mar 30th ,2012** **In weeks: 8 Weeks**
D. ELIGIBILITY CRITERIA FOR PARTICIPANTS: 1. EDUCATIONAL QUALIFICATIONS 2. WORK EXPERIENCE required, if any 3. AGE LIMIT 4. Target Group *[Level of participants and target ministries/departments etc. may be indicated]*	1) Two years Technical course or Graduate in any Stream after 12 years of schooling 2) ------- 3) ------ 4) Should meet the above educational requirements and should know English language
E. AIMS AND OBJECTIVES OF THE COURSE	Objective: The purpose of the programme is to introduce to the participants about Geographic Information System & Remote Sensing concepts. Further the participants would be trained on various tools so as to enable them to develop GIS Applications.
F. MODE OF EVALUATION OF PERFORMANCE OF THE TRAINEE	Lab Work & Project Work

Start Date: Feb 6th , 2012 **Duration: 8 Weeks**
End Date: March 30th , 2012

Objective

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

- To understand the GIS & Remote Sensing concepts.
- To understand information relating to integration of GIS, Remote Sensing and Application software development.
- To understand about Development of GIS Applications using Client/Server Architecture

Course Content

1. Fundamentals of GIS

- Introduction to GIS
- Mapping and GIS
- Digital Representation of Geographic Data
- Vector Based GIS
- Thematic map Preparation
- GIS Analysis

2. Application GIS

- Non Spatial Database
- Client server GIS

3. Advance GIS

- Spatial Analysis and Modeling using ArcGIS
- GIS Implementation and Project Management

4. Concepts of Remote Sensing

- Introduction to Remote Sensing (Optical,Thermal & Microwave)
- Data acquisition (aircrafts and satellites)
- Integration of GIS and Remote sensing

5. Principles of remote sensing

- Multispectral Remote sensing **(multispectral scanners: whiskbroom and push broom)**

- Hyper spectral Remote Sensing
- Analysis and interpretation of visual and digital remote sensing data

6. Digital Image Processing Using ERDAS Imagine (applications of remote sensing in land use \ land Cover)

- Pre-processing corrections: Radiometric correction Geometric aspects
- Introduction to DIP
- Image Rectification and Restoration
- Indices and Rationing
- Image Classification
- Post Classification Smoothing
- Change Detection Analysis

7. Application Development Tools

- VB.Net
- ORACLE 9i
- SQL

8. GIS Analysis

- AutoCAD MAP
- MAP Info
- Arc View and Arc GIS

9. Non Spatial Database

- Database Concepts
- Relation between different tables
- Linking of External non spatial database Geo Database.

10. APPLICATION GIS Development

- Client/Server GIS using Oracle, VB.Net and Map Objects.

11. Project Work

Eligibility Criteria:

Two years Technical Course or Graduate in any stream after 12 years of Schooling.