# Capacity Building  Programme for SSNNL Engineers in Geo  informatics

## Basic Module

**Day 1**

| S. No. | Time | Tentative Topic |
|---|---|---|
| 1 | 10:00 AM - 11:30 AM | Introduction, Fundamentals of GIS, map projection and coordinate systems, Geo-referencing GPS |
| 2 | 11:45 AM - 01:15 PM | Introduction to GIS Software, Arc GIS Desktop interface extension and tools . |
| 3 | 02:00 PM - 03:30 PM | Lab Exercise I: • Digitization, ArcGIS interface, geo-referencing, mosaicking, basic digitization(Point, Line & Polygon) |
| 4 | 03:45 PM - 05:15 PM | Lab Exercise II: Geocoding & Geotagging  Integration of field data and Mobile Survey using Survey123, |
| 5 | 05:15 PM - 05:30 PM | Discussions and preparation for next day |

**Day 2**

| S. No. | Time | Tentative Topic |
|---|---|---|
| 1 | 10:00 AM - 11:30 AM | Data base Management using ArcGIS Desktop, Relational Database Management, One to one, one to Many and Many to many, Attribute Table integrations and  Errors |
| 2 | 11:45 AM - 01:15 PM | Information to layers , and attribute tables , data tools , symbology and other display options . |
| 3 | 02:00 PM - 03:30 PM | Representation of cartographic data  category of maps , SOI topsheets, Map Features, |
| 4 | 03:45 PM - 05:15 PM | Lab Exercise 1:- Creation and edition of data in Attribute table , Symbology tools practice for Gujarat and Command area of SSNNL using shape file and layers<br> Lab Exercise II: Addition of attributes, reading data from Excel files, |
| 5 | 05:15 PM - 05:30 PM | Discussions and preparation for next day |

**Day3**

| S. No. | Time | Tentative Topic |
|---|---|---|
| 1 | 10:00 AM - 11:30 AM | Remote Sensing: Definition, Platforms, Image resolutions elements of image interpretation, |
| 2 | 11:45 AM - 01:15 PM | Digital image Analysis : Classification, Land use Land cover |
| 3 | 02:00 PM - 03:30 PM | Lab Exercise 1:-Digital image Analysis : Classification, Land use Land cover |
| 4 | 03:45 PM - 05:15 PM | Lab Exercise 2:- Introduction of the Various portals:  Bhuvan Portal, US-GS and VEDAS and other websites, SRTM, ASTER, LISS3, Sentinel |
| 5 | 05:15 PM - 05:30 PM | Discussions and preparation for next day |

**Day4**

| S. No. | Time | Tentative Topic |
|---|---|---|
| 1 | 10:00 AM - 11:30 AM | Vector data modelling : Geoprocessing Tools, Clip, Join, Intersect,Union |
| 2 | 11:45 AM - 01:15 PM | Exporting and importing of Spatial information files from different formats like CAD, creating layers from CAD files, modifying existing layers and its error. |
| 3 | 02:00 PM - 03:30 PM | Lab Exercise 1:- Exporting and importing of Spatial information files from different formats like CAD, creating layers from CAD files, modifying existing layers and its error. |
| 4 | 03:45 PM - 05:15 PM | Lab Exercise 2:- Extracting information using  Spatial statistical Analysis : geometric information , creation of, exporting tables to excel , report and graph creation |
| 5 | 05:15 PM - 05:30 PM | Discussions and preparation for next day |

**Day5**

| S. No. | Time | Tentative Topic |
|---|---|---|
| 1 | 10:00 AM - 11:30 AM | Watershed Analysis : Creation of Contour, Slop, Aspects Identify the Natural Drainage and level of the Drainage. |
| 2 | 11:45 AM - 01:15 PM | Watershed Analysis : Creation of Contour, Slop, Aspects Identify the Natural Drainage and level of the Drainage. |
| 3 | 02:00 PM - 03:30 PM | Lab Exercise 1:- Watershed Analysis : Creation of Contour, Slop, Aspects Identify the Natural Drainage and level of the Drainage. |
| 4 | 03:45 PM - 05:15 PM | Lab Exercise 2:- Watershed Analysis : Development of the Basin and Watershed, Identify the Villages covered under Basin and Watershed area |
| 5 | 05:15 PM - 05:30 PM | Discussions and preparation for next day |

**Day 6**

| S. No. | Time | Tentative Topic |
|---|---|---|
| 1 | 9:30 AM - 10:30 AM | GIDM |
| 2 | 10.30 AM – 11.30 AM | GIDM |
|  | 11.45 A M to 12.45 PM | GIDM |
|  | 1.30 PM to 2.45 PM | Introduction to open Web-Mapping:- Web pages ,  OGC-framework of open web mapping: Geospatial Web Services, importance of open web mapping , international open web standards as published by the Open Geospatial Consortium ,  use of ArcGIS enterprise |
| 3 | 02:45 PM – 4.00 PM | Internet GIS Concepts and Web GIS , Overview of Internet GIS concepts and features , Internet Protocols , Domain Name .System , Internet services , www, Web servers , Web clients , CGI, the web and GIS |
| 4 | 04:15 PM – 5.00 PM | . Valedictory Session and certificate distribution |