SYLLABUS

FOR

TOTAL STATION

SURVEY TRAINING INSTITUTE, H-8/2 ISLAMABAD

SURVEY OF PAKISTAN

SURVEY TRAINING INSTITUTE ISLAMABAD

COURSE: Total Station **DURATION: - 4 Weeks**

BREAKDOWN SCHEDULE

ACTIVITY	Duration (Weeks)
• Theory • Handling of Total Station instrument	1
• Field Practice / Observations	2
• Introduction to Downloading and Processing Software • Field data Downloading and Processing	1/2
• Project • Final Test	1/2

SYLLABUS

A). THEORY:

1. Introduction to Total Station

a. What is Total Station

b. Comparison and Performance

c. Advantages and disadvantages

d. Components of Total Station

e. Categories of Total Station

f. Specifications

g. Total Station Field equipment

h. Standard and optimal accessories and their function.

i. Parts of the instrument and explanation of key functions.

2. Instrument 's checking and Calibration

a. Precaution to be taken while using total Station instrument

b. Equipment abuse

c. Instrument Maintenance and checking

d. Instrument repair and adjustment

e. Calibrations

3. Set up and Orientation of Total Station

a. Setting Up the Total Station

i. Centering

ii. Leveling

b. Configuration of instrument

i. Selection of measurement units

ii. Correction factors and constants

iii. Atmospheric correction for high precision distance and coordinates measurements

c. Orientation of Total Station

i. Occupied Station /Back sighted Station entries

ii. Azimuth calculation

4. Phases of Total Station Survey

a. Planning/Reconnaissance
b. Control Survey
c. Data Acquisition in the Field
d. Data Downloading and Processing
e. Data Editing
f. Data Examination
g. Out Put / Printing Map

5. Measurement with Total Station

a. Angle and Distance Measurement
b. Coordinate Measurement
c. Remote Elevation Measurement (REM)
d. Missing Line Measurement (MLM)
e. Offset Measurement
f. Setting Out/Construction layout
g. Resection Measurement
h. Traverse Style Measurement
i. Area Calculation

6 .Topographic Survey using Total Station

a. Topographic data acquisition method
b. Feature Coding during Topographic survey
c. Types of Feature Codes
d. Understanding Feature Codes
e. Adding / Deleting Codes.

7. Sources of Error

a. Personal Errors
b. Instrumental Errors
c. Natural Errors

B). PRACTICAL:

a. Introduction to Total Station Instrument
b. Setting Up the Total Station
c. Configuration of instrument
d. Orientation of Total Station
e. Angle And Distance Measurement
f. Coordinate Measurement
g. Establishment of Control Stations
h. Topographic data collection and Recording
i. As Built Survey
j. Remote Elevation Measurement
k. Missing Line Measurement
l. Offset Measurement
m. Setting Out/Construction layout
    i. Set Out Centerline
    ii. Subdivision Design and Layout
n. Resection Measurement
o. Area Calculation

C). Data Downloading and Processing

a. Introduction to Downloading and Processing software
b. Downloading a Raw data from Total Station Instrument
c. Converting a Raw File to a Field File
d. Creating the Map File/Symbol Library
e. Reduction of Field file using the map file
f. Generating TIN
g. Editing Point/ Target Height
h. Editing TIN
i. Creating Contours
j. Contour Labels
k. Editing erroneous Coding
l. Plotting
    i. Feature Labeling
    ii. Setting Plot Scale

iii. Adding Text

iv. Creating Legend

m. Data Exchange

i. Data export to CAD software

ii. Editing in CAD software

iii. Out put Map Sheet