

# **Advance Level Training on Application of GIS and Remote Sensing in Natural Resource Management**

**at Kathmandu Forestry College, Balkumari, Koteshwor**

**In collaboration with Nepal Remote Sensing and Photogrammetric Society**

**16-29 June, 2019**

## **Introduction**

The Geographical Information System (GIS) and Remote Sensing are helpful scientific tools to analyze the earth system, phenomenon and characteristics of the objects on the earth. The RS and GIS help to explore spatial information captured by the satellite or scanned images.

These days, GIS and Remote Sensing are considered as reliable and convincing tool to generate the spatial based data from the field, conduct geographic analysis and visualize the information in meaningful and demonstrative way.

Several institutions have been using GIS and RS in their activities. So, the demand of GIS and RS experts has been increasing day by day. Realizing this, Kathmandu Forestry College (KAFCOL) has been offering MSc in Geographical Information Science and Systems (UNIGIS MSc) since 2012, in cooperation with the Department of Geoinformatics – Z\_GIS, University of Salzburg, Austria (Europe). This programme has been approved by the Ministry of Education, Government of Nepal and accepted as equivalent to Master's Degree by the Tribhuvan University. This international MSc degree course is pioneer of its type offered in Nepal, which has worldwide recognition. Individuals and practitioners with Bachelor degree who are interested to pursue GIS/RS higher degree course (including those who are already active in this field) will find this course very useful.

Alongside offering UNIGIS MSc course, KAFCOL organizes different relevant activities to promote application of GIS and remote sensing in Nepal. This two week long training in advance training on GIS and RS application in Natural Resource Management is one of such activities is going to be organized by Kathmandu Forestry College in collaboration with Nepal Remote Sensing and Photogrammetric Society.

## **Objectives:**

The training has two main objectives: (i) to introduce GIS Science, impart knowledge about its different aspects and utilities, and provide basic practical skills for applying GIS and remote sensing in the field of interest, and (ii) to develop a foundation to facilitate enrollment and successfully complete the UNIGIS MSc course by those undergraduate degree holders who have not yet entered the geospatial field but have interest in it.

## **Expected outcomes**

On the completion of the training course, the participants are expected to:

- be able to prepare different types of maps in ArcGIS and ERDAS Imagine
- gain specific knowledge in geospatial analyses for natural resource management
- be able to handle ArcGIS, ERDAS Imagine and other relevant tools for spatial and non-spatial data integration

- formulate and conduct geospatial projects in the area of their interest

### Tentative Session plan

Day	7:00 -8:15 AM	Resource Person	8:15 to 9:30 AM	Resource Person
16 <sup>th</sup> June	Introduction to GIS and Installing ArcGIS		Getting started with ArcGIS	
17 <sup>th</sup> June	Fundamentals of map projection and transformation		Geo-referencing Hand On Exercise	
18 <sup>th</sup> June	Fundamentals of GPS Use of GPS data in GIS environment		Hands On Exercise	
19 <sup>th</sup> June	Basics of Geographic analysis (Spatial, Network, topographic, Geoprocessing)		Geostatistical basics and application Hands On Exercise	
20 <sup>th</sup> June	Digitization and topology creation		Hands On Exercise	
21 <sup>st</sup> June	Symbolization, visualization and cartography		Map layout and Export	
22 <sup>nd</sup> June	Fundamentals of Remote Sensing		Working with Satellite images and ERDAS Hands On Exercise	
23 <sup>rd</sup> June	Image classification		Hands On Exercise	
24 <sup>th</sup> June	Application of GIS on forest management		Hands On Exercise	
25 <sup>th</sup> June	LULC and change analysis		Hands On Exercise	
26 <sup>th</sup> June	Habitat mapping		Hands On Exercise	
27 <sup>th</sup> June	Biomass estimation		Hands On Exercise	
28 <sup>th</sup> June	Watershed management		Hands On Exercise	
29 <sup>th</sup> June	Soil loss analysis		Hands On Exercise	

Course Fee: NRs 14000/-

### Software and Tools

1. ArcGIS 10.5
2. ERDAS Imagine 2015
3. MAXENT Tool
4. INVEST Tool
5. Hydrological Modeling/Watershed Tool
6. BaseCamp

### **Training Instructors**

1. Dr. Him Lal Shrestha, Program Coordinator, UNIGIS Program, KAFCOL/NRSPS
2. Dr. Umesh Kumar Mandal, Professor, Tribuwan University/NRSPS
3. Mr. Prashid Kandel, Visiting Faculty, KAFCOL

### Assistant

1. Ms. Puspa Dhakal (former KAFCOL's BSc passed student)