

Practical Manual on **Geomatics**

FNR 319 3(1+2)

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2020



**College of Horticulture & Forestry
Rani Lakshmi Bai Central Agricultural University
Jhansi-284003**

Syllabus:

Preparation maps; Visual interpretation of satellite imagery; Forest cover mapping and land use mapping. Digital image processing. Introduction to various GIS software – Q-GIS, ERDAS, Arc GIS etc. Exercises in viewing, editing, overlay. Visit to the GIS labs at State level.

Name of Student.....

Roll No.

Batch.....

Session.....

Semester.....

Course Name:

Course No. :

Credit.....

Published: 2020

No. of copies:

Price: Rs.

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CERTIFICATE

This is to certify that Shri./Km.ID
No.....has completed the practical of
course.....course No. as per the
syllabus of B.Sc. (Hons.) Forestry semester in the year.....in the respective lab/field of
College.

Date:

Course Teacher

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Practical No. 3

Objective: To download various satellite data from open source web link.

Material Required:
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Procedure:
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Practical No. 4

Objective: To displaying various band combination of satellite image data.

Material Required:

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Procedure:

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Observations:

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Satellite	FCC Band combination	NCC combination	Band	Pseudo combination
Landsat				
LISS-III				
Sentinel-2A				
MODIS				
SPOT				

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Procedure-Image to image:

Observations-Toposheet:

GCC	LAT	LONG	RMSE
1			
2			
3			
4			

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Practical No. 7

Objective: To subset of satellite data.

Material Required:

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Procedure:

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LU/LC type	DN-Value (No stretch)	LUT-Value (No stretch)	DN-Value (Linear stretch)	LUT-Value (Linear stretch)
Water bodies				
Fallow land				
Settlement				
Forest				
Barren land				

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Discussion and Conclusion:

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LU/LC type	LAT/Long-1	LAT/Long-2	LAT/Long-3	LAT/Long-4	LAT/Long-5	LAT/Long-6
Water bodies						
Fallow land						
Settlement						
Forest						
Barren land						

Spectral Profile:

Observations:

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Class	Recode value	New value

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Histograms equalization:

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Discussion and Conclusion:

Objective: To filtering of satellite data.

Material Required:

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Procedure:

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Observations:
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Feature class	Filter-1	Filter-2	Filter-3	Filter-4

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Discussion and Conclusion:
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Objective: To zonal change detection of Bundelkhand region.

Material Required:

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Procedure:

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Observations:

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Particulates	
Sentinel-2A	
Scale	
Band combination	
Temporal Resolution	
Spatial Resolution	
Year	

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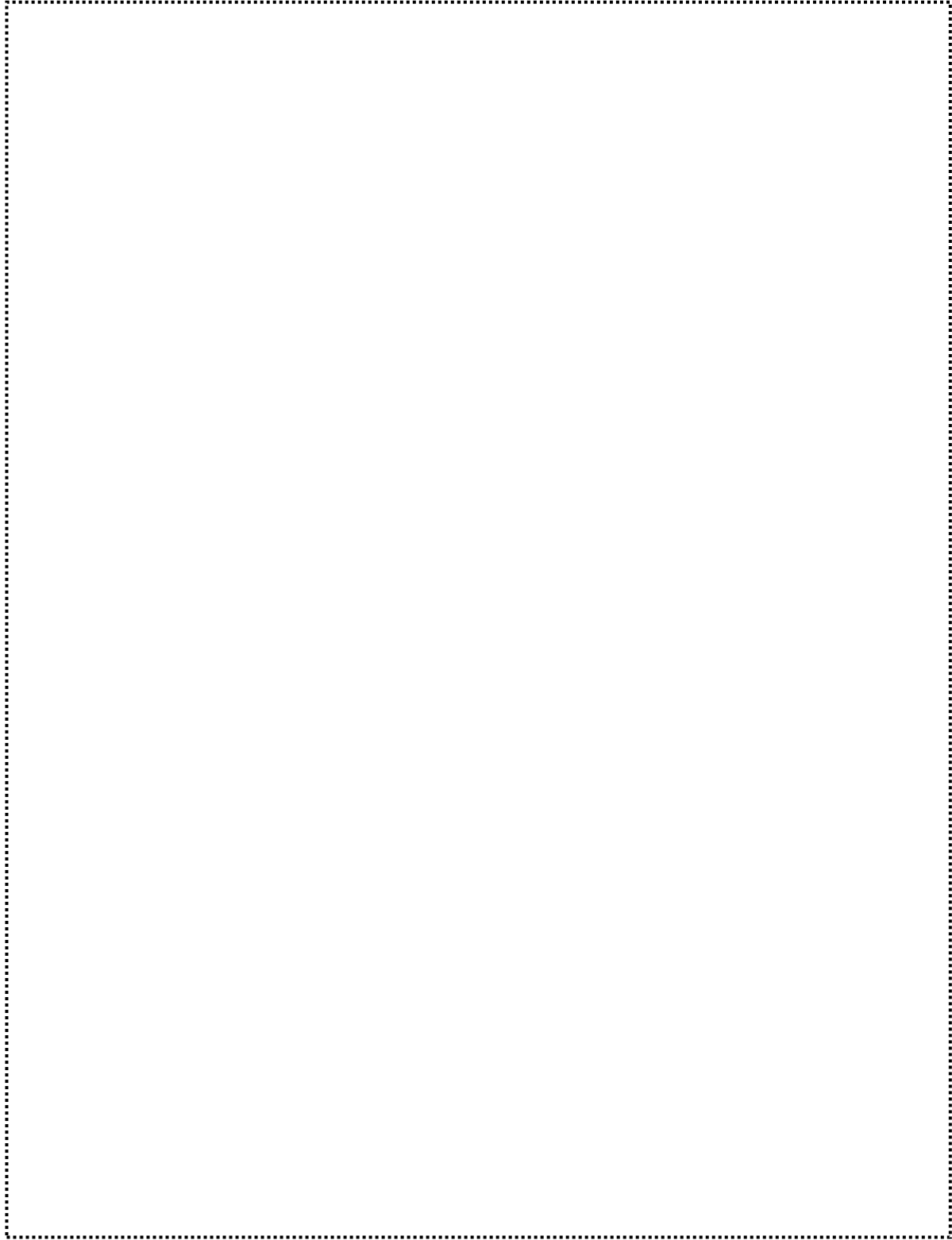
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Methodology Chart:



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Discussion:

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Class	Lower limit	Upper limit	Frequency	Cumulative frequency	Remarks
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					

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Statistical Parameter

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Parameter	Value	Remarks
Actual maximum		
Mean		
Standard deviation		

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Dotted lines for writing.

Discussion:

Dotted lines for writing.

Objective: Familiarization with GIS Software Installation, Sample Data, starting and Stopping QGIS.

Material Required:

Procedure:

Observations:

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Observations:
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Observations:

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Practical No. 18

Objective: To forest cover mapping of Bundelkhand region using Sentinel-2A/Landsat satellite data.

Material Required:

Procedure:

Practical No. 19

Objective: To Land use and land cover mapping of Jhansi region using Sentinel-2A satellite data.

Material Required:

Procedure:

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Observations:

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Class	Area
Water bodies	
Settlement	
Forest	
Agriculture	
Barren land	
Fallow land	

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Discussion:

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Practical No. 21

Objective: To creation point map of various building, farm, hostel and staff quarters at Rani Lakshmi Bai Central Agricultural University using handheld GPS.

Material Required:

Procedure:

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Observation:

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Location	LAT	LONG

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Practical No. 22

Objective: Visit to GIS lab at state level.

Material Required:

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Observation:

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Report:

Notational Conventions

Bold Italicized Text: Any text, which is bold, indicates a *filename*, or *parameter* to be changed or selected.

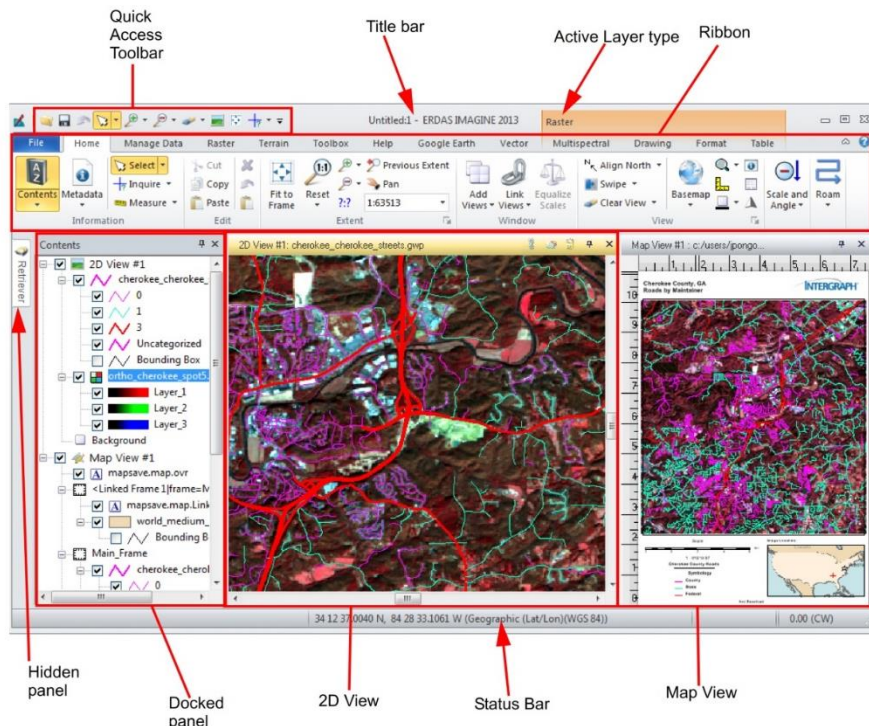
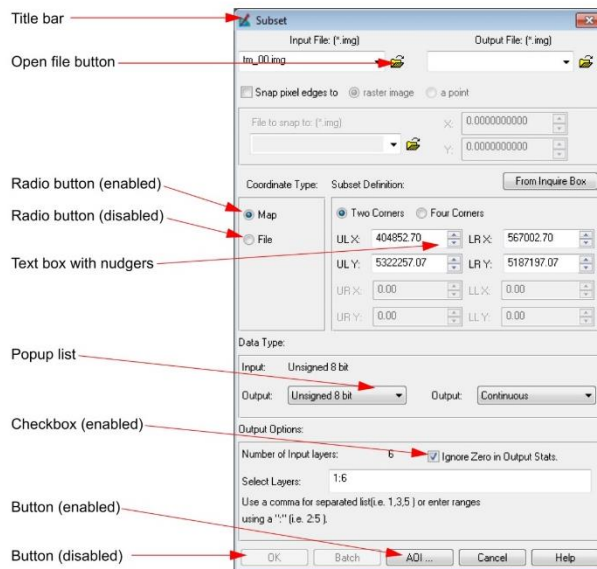
Graphics: To help you locate icons and objects used in the exercises, the icons will be next to the icon name in the text.

Insets: These italicized captions will appear in the outside margin of the page. They define terms or explain theory behind the steps you are being asked to perform.

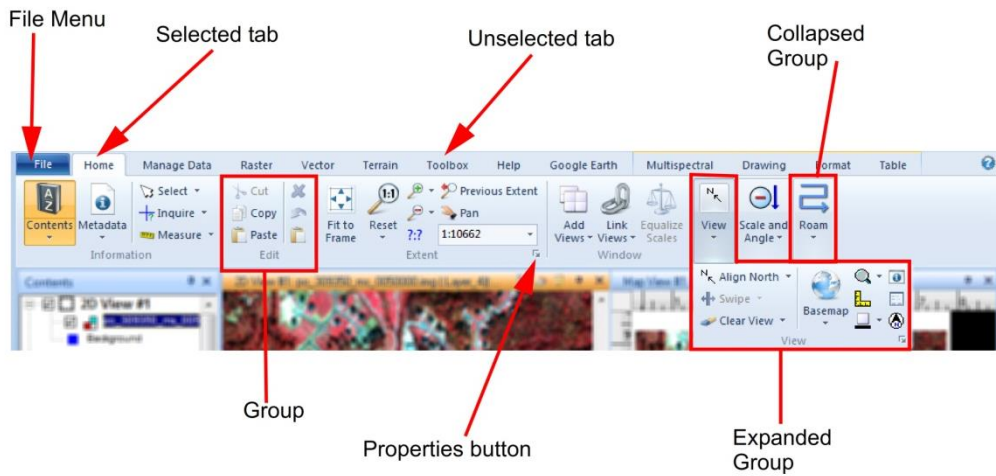
Diagrams: These are an optional means to direct you in the usage of some of the application's tools.

The following graphics are also used for particular purposes:

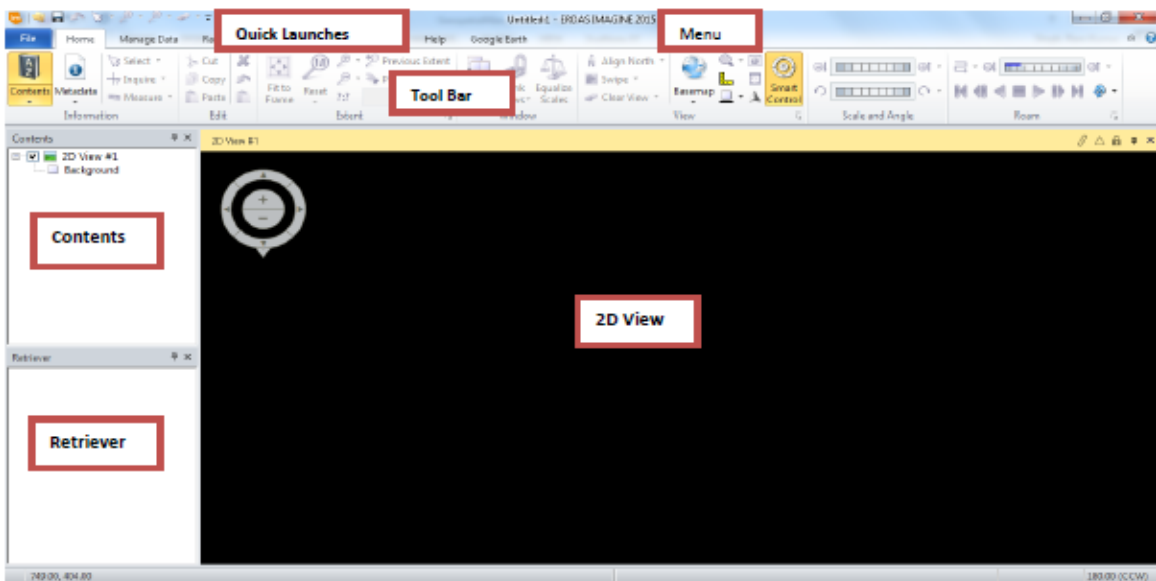
Windows Terminology



The Ribbon Explained



Erdas Imagine Interface Terminology



Mouse Conventions

LMB Left Mouse Button
 RMB Right Mouse Button
 MMB Middle Mouse Button