

## NARSS TRAINING COURSES

### Introduction

NARSS, The National Authority for Remote Sensing and Space Sciences is the pioneering Egyptian institution in the field of remote sensing. NARSS is an outgrowth of a Remote Sensing Center, established in 1972 under the – Egyption Academy of Scientific Research and Technology. In 1994 the Authority was established as an organization under the State Ministry of Scientific Research to promote the use of state of the art in space technologies to serve development projects in the country and to introduce High Tech capabilities in national and regional planning among other applications.

NARSS has a core of approximately 65 qualified scientists and professionals in different disciplines. It is equipped with modern facilities including an aircraft with aerial camera, laser system data acquisition equipment, a digital data processing laboratory ( for processing satellite images and aircraft digital data), a photographic laboratory (for production of topographic and planimetric maps from aerial, terrestrial and space photographs). Also it has Training Labs equipped with modern work stations connected with NARSS internal information network and internet.

NARSS is pleased to offer the following courses in remote sensing and Geographic Information Systems (GIS)

- Fundamentals of Geographic Information Systems (GIS 1)
- Advanced Geographic Information Systems (GIS 2)
- Production of Thematic maps (i.e) Soil, Geologic and Geomorphologic maps
- Integration between Remote Sensing and Geographic Information Systems
- Fundamentals of remote sensing (RS 1)
- Digital image processing (RS 2)
- Softwares application (SW)
- Applications of remote sensing on oil and mineral resources (Ap 1)
- Applications of remote sensing on hydrology and hydrogeology (Ap 2)
- Applications of remote sensing on coastal and marine resources (Ap 3)
- Applications of remote sensing on soil and agriculture resources (Ap 4)
- Applications of Climate Changes

The attached documents include details about these courses, time frames, and cost.

# Fundamentals of Geographic Information Systems (GIS 1)

*(Application on Agriculture, Soils, Geology, Geomorphology and Landuse & Urban planning)*

<b>Course room:</b>	Hussein Younis Hall
<b>Labs room:</b>	Mohammed Abdel Hady Hall
<b>Training duration:</b>	5 days
<b>Time schedule:</b>	
	9:00 AM – 12:00 PM
<b>Break:</b>	12:00 PM – 1:00 PM
	1:00 PM – 3:00 PM
<b>Time formal:</b>	5 hours
<b>Time for practice &amp; exercises:</b>	25 hours

## COURSE TOPICS AND OUTLINES

**LECTURE 1: GIS FUNDAMENTALS**

**LECTURE 2: DATA MODELS AND DATA FORMATS**

**LECTURE 3: WORKING WITH TABLES**

**LECTURE 4: GEO-REFERENCING**

**LECTURE 5: ANALYSIS POWER OF GIS**

**LECTURE 6: MAP PRODUCTION**

### Instructors & Lecturers

**Group of Professors and Specialists in the fields of**

**Soils and Agricultures**

**Remote sensing and Image processing**

**Geographic Information System**

**Geology**

**Hydrogeology**

**Geomorphology**

**Landuse planning**

**Urban planning**

## Advanced Geographic Information Systems (GIS 2)

*(Advanced Application on Agriculture, Soils, Geology, Geomorphology and Landuse & Urban planning)*

<b>Course room:</b>	Hussein Younis Hall
<b>Labs room:</b>	Mohammed Abdel Hady Hall
<b>Training duration:</b>	5 days
<b>Time schedule:</b>	9:00 AM – 12:00 PM
<b>Break:</b>	12:00 PM – 1:00 PM 1:00 PM – 3:00 PM
<b>Time formal:</b>	5 hours
<b>Time for practice &amp; exercises:</b>	25 hours

### COURSE TOPICS AND OUTLINES

- LECTURE 1: GEODATABASE CONCEPTS AND DESIGN
- LECTURE 2: SPATIAL ANALYST (1)
- LECTURE 3: SPATIAL ANALYST (2)
- LECTURE 4: 3D ANALYST (1)
- LECTURE 5: 3D ANALYST (2)
- LECTURE 6: GEOSTATISTICAL ANALYEST

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Urban planning

## Production of Thematic maps (i.e) Geologic and Geomorphologic maps

*(Application on Agriculture, Soils, Geology, Geomorphology and Landuse & Urban  
planning)*

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<b>Time for practice &amp; exercises:</b>	25 hours

### COURSE TOPICS AND OUTLINES

**LECTURE 1: DATA EXTRACTION THROUGH DIGITAL IMAGES OF SATELLITES**

**LECTURE 2: MAJORITY ANALYSIS**

**LECTURE 3: RASTER TO VECTOR CONVENTION**

**LECTURE 4: DATA EDITING**

**LECTURE 4: GEOMETRIC CORRECTION**

**LECTURE 5: TRANSFORMATIONS AND PROJECTIONS**

**LECTURE 6: MAPPING AND LAYOUTS**

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# Integration between Remote Sensing and Geographic Information Systems

*(Application on Agriculture, Soils, Geology, Geomorphology and Landuse & Urban  
planning)*

<b>Course room:</b>	Hussein Younis Hall
<b>Labs room:</b>	Mohammed Abdel Hady Hall
<b>Training duration:</b>	5 days
<b>Time schedule:</b>	
	9:00 AM – 12:00 PM
<b>Break:</b>	12:00 PM – 1:00 PM
	1:00 PM – 3:00 PM
<b>Time formal:</b>	5 hours
<b>Time for practice &amp; exercises:</b>	25 hours

## COURSE TOPICS AND OUTLINES

### REMOTE SENSING WORK

**LECTURE 1: USING RASTER IMAGES IN DIFFERENT FORMATS**

**LECTURE 2: SPATIAL AND SPECTRAL SUBSET**

**LECTURE 3: RADIOMETRIC CORRECTION**

**LECTURE 4: GEOMETRIC CORRECTION**

**LECTURE 5: DATA EXTRACTION**

**LECTURE 6: RASTER TO VECTOR CONVERSION**

**LECTURE 7: DATA MANIPULATION**

**LECTURE 8: DATA EDITING**

**LECTURE 9: MAPPING AND LAYOUTS**

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## Fundamentals of Remote Sensing (RS 1)

*(Application on Agriculture, Soils, Geology, Geomorphology and Landuse & Urban planning)*

<b>Course room:</b>	Hussein Younis Hall
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### COURSE TOPICS AND OUTLINES

**LECTURE 1: ELECTROMAGNETIC RADIATION AND PHYSICS OF REMOTE SENSING**

**LECTURE 2: TYPES OF SENSORS**

**LECTURE 3: OPTICAL REMOTE SENSING**

**LECTURE 4: THERMAL REMOTE SENSING**

**LECTURE 5: HYPERSPECTRAL REMOTE SENSING**

**LECTURE 6: MICROWAVE RADIOMETRY**

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## Digital Image Processing (RS 2)

(Application on Agriculture, Soils, Geology, Geomorphology and Landuse & Urban  
planning)

<b>Course room:</b>	Hussein Younis Hall
<b>Labs room:</b>	Mohammed Abdel Hady Hall
<b>Training duration:</b>	5 days
<b>Time schedule:</b>	9:00 AM – 12:00 PM 12:00 PM – 1:00 PM 1:00 PM – 3:00 PM
<b>Break:</b>	
<b>Time formal:</b>	5 hours
<b>Time for practice &amp; exercises:</b>	25 hours

### COURSE TOPICS AND OUTLINES

LECTURE 1: IMAGE PREPROCESSING

LECTURE 2: RADIOMETRIC ENHANCEMENT

LECTURE 3: SPECTRAL ENHANCEMENT

LECTURE 4: SPATIAL ENHANCEMENT

LECTURE 5: MULTISPECTRAL ANALYSIS AND CLASSIFICATION

LECTURE 6: REMOTE SENSING AND GEOGRAPHIC INFORMATION  
SYSTEMS

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Remote sensing and Image processing

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Urban planning

## Softwares application (RS 3)

*(Application on Agriculture, Soils, Geology, Geomorphology and Landuse & Urban planning)*

<b>Course room:</b>	Hussein Younis Hall
<b>Labs room:</b>	Mohammed Abdel Hady Hall
<b>Training duration:</b>	5 days
<b>Time schedule:</b>	9:00 AM – 12:00 PM
<b>Break:</b>	12:00 PM – 1:00 PM 1:00 PM – 3:00 PM
<b>Time formal:</b>	5 hours
<b>Time for practice &amp; exercises:</b>	25 hours

### COURSE TOPICS AND OUTLINES

**LECTURE 1: INTRODUCTION TO APPLICATION SOFTWARES**

**LECTURE 2: BASIC TOOLS**

**LECTURE 3: IMAGE CORRECTION TOOLS**

**LECTURE 4: IMAGE ENHANCEMENT**

**LECTURE 5: IMAGE CLASSIFICATION**

**LECTURE 6: MAPPING PRODUCTION**

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## Remote Sensing Applications on Oil and Mineral Resources

### (AP 1)

<b>Course room:</b>	Hussein Younis Hall
<b>Labs room:</b>	Mohammed Abdel Hady Hall
<b>Training duration:</b>	5 days
<b>Time schedule:</b>	
	9:00 AM – 12:00 PM
<b>Break:</b>	12:00 PM – 1:00 PM
	1:00 PM – 3:00 PM
<b>Time formal:</b>	5 hours
<b>Time for practice &amp; exercises:</b>	25 hours

### COURSE TOPICS AND OUTLINES

**LECTURE 1: CONCEPTUAL FRAMEWORK OF OIL AND MINERAL EXPLORATION**

**LECTURE 2: ROCK AND MINERAL DEFINITION USING MULTISPECTRAL IMAGERIES**

**LECTURE 3: SPECTROSCOPIC REMOTE SENSING**

**LECTURE 4: THERMAL REMOTE SENSING IN MINERAL EXPLORATION**

**LECTURE 5: PRODUCTION OF MINERAL MAP**

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**Landuse planning**

**Urban planning**

## Remote Sensing Applications on Hydrology and Hydrogeology (AP 2)

<b>Course room:</b>	Hussein Younis Hall
<b>Labs room:</b>	Mohammed Abdel Hady Hall
<b>Training duration:</b>	5 days
<b>Time schedule:</b>	
	9:00 AM – 12:00 PM
<b>Break:</b>	12:00 PM – 1:00 PM
	1:00 PM – 3:00 PM
<b>Time formal:</b>	5 hours
<b>Time for practice &amp; exercises:</b>	25 hours

### COURSE TOPICS AND OUTLINES

**LECTURE 1: DRYLAND ENVIRONMENT HYDROLOGY AND PROCESSES**

**LECTURE 2: IMAGE PROCESSING FOR HYDROLOGIC APPLICATIONS**

**LECTURE 3: FLASH FLOOD RECOGNITION AND MAPPING**

**LECTURE 4: DRYING UP OF TOSHA LAKES: A CASE STUDY FROM  
EGYPT**

**LECTURE 5: REMOTE SENSING DATA FOR GIS HYDROLOGIC MODELING**

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## Remote Sensing Applications on Coastal and Marine Resources (AP 3)

<b>Course room:</b>	Hussein Younis Hall
<b>Labs room:</b>	Mohammed Abdel Hady Hall
<b>Training duration:</b>	5 days
<b>Time schedule:</b>	
	9:00 AM – 12:00 PM
<b>Break:</b>	12:00 PM – 1:00 PM
	1:00 PM – 3:00 PM
<b>Time formal:</b>	5 hours
<b>Time for practice &amp; exercises:</b>	25 hours

### COURSE TOPICS AND OUTLINES

#### LECTURE 1: COASTAL PROCESSES

#### LECTURE 2: COASTAL PROCESSES AND COASTAL ZONE MANAGEMENT

#### LECTURE 3: BIOLOGICAL ASPECTS OF REMOTE SENSING

#### LECTURE 4: LAND/SEA INTERACTION

#### LECTURE 5: Remote Sensing Applications on Coastal Zone

#### Instructors & Lecturers

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## Remote Sensing Applications on Soil and Agricultural Resources (AP 4)

<b>Course room:</b>	Hussein Younis Hall
<b>Labs room:</b>	Mohammed Abdel Hady Hall
<b>Training duration:</b>	5 days
<b>Time schedule:</b>	
	9:00 AM – 12:00 PM
<b>Break:</b>	12:00 PM – 1:00 PM
	1:00 PM – 3:00 PM
<b>Time formal:</b>	5 hours
<b>Time for practice &amp; exercises:</b>	25 hours

### COURSE TOPICS AND OUTLINES

**LECTURE 1: HYPERSPECTRAL DATA FOR IDENTIFYING MINERALS**

**LECTURE 2: EARLY WARNING SYSTEM AND REMOTE SENSING**

**LECTURE 3: REMOTE SENSING AND PLANT PRODUCTIVITY**

**LECTURE 4: REMOTE SENSING AND CROPPING PATTERN SYSTEMS**

**LECTURE 5: CASE STUDY**

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## Applications of Climate Changes

<b>Course room:</b>	Hussein Younis Hall
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	1:00 PM – 3:00 PM
<b>Time formal:</b>	5 hours
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### COURSE TOPICS AND OUTLINES

**LECTURE 1: SEA LEVEL RISE SCENARIOS**

**LECTURE 2: EROSION AND ACCRETION**

**LECTURE 3: USING THERMAL BANDS**

**LECTURE 4: COASTAL TOPOGRAPHY**

**LECTURE 5: COASTAL GEOMORPHOLOGY CHANGES**

**LECTURE 6: CASE STUDY**

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## Price List

No:	Course	Data	Price per trainee
1	Fundamentals of GIS ( GIS 1)	29/03 – 02/04 21/06 – 25/06 18/10 – 22/10	LE 700
2	Advanced GIS (GIS 2)	05/04 – 09/04 28/06 – 02/07 25/10 – 29/10	LE 750
3	Production of Thematic maps (i.e)Geologic and Geomorphologic maps	12/04 – 16/04 05/07 – 09/07 01/11 – 05/11	LE 700
4	Integration between Remote Sensing and Geographic Information Systems	25/01 – 29/01 19/04 – 23/04 12/07 – 16/07 08/11 – 12/11	LE 700
5	Fundamentals of Remote Sensing (RS 1)	01/02 – 05/02 26/04 – 30/04 19/07 – 23/07 15/11 – 19/11	LE 700
6	Digital Image Processing (RS 2)	08/02 – 12/02 31/04 – 07/05 26/07 – 30/07 22/11 – 26/11	LE 750
7	Softwares application ( SW)	15/02 – 19/02 10/05 – 14/05 02/08 – 06/08 06/12 – 10/12	LE 750
8	Applications of Remote Sensing on Oil and Mineral Resources (Ap 1)	22/02 – 26/02 17/05 – 21/05 09/08 – 13/08 13/12 – 17/12	LE 750
9	Applications of Remote Sensing on Hydrology and Hydrogeology (Ap 2)	01/03 – 05/03 24/05 – 28/05 16/08 – 20/08 20/12 – 24/12	LE 750
10	Applications of Remote Sensing on Coastal and Marine Resources (Ap 3)	08/03 – 12/03 30/05 – 04/06 27/09 – 01/10 27/12 – 31/12	LE 750
11	Applications of Remote Sensing on Soil and Agriculture Resources (Ap 4)	15/03 – 19/03 07/06 – 11/06 04/10 – 08/10	LE 750
12	Applications of Climate Changes	22/03 – 26/03 14/06 – 18/06 11/10 – 15/10	LE 700

## Discounts

50 % for university undergraduate students (350 / 375)

25 % for university Post graduate students (Ms and PhD students) (525 / 560)