FUTURE UNIVERSITY IN EGYPT جامعة المستقبل

Faculty of Engineering & Technology

Elective 11/ Computer -Aided Information (GIS)

Information :

Course Code :	ARC E11	**Level :**	Undergraduate	**Course Hours :**	3.00- Hours

Department : Department of Architectural Engineering

Area Of Study :

This course aims at:
ÅExpanding the student's awareness of the basic concepts of spatial analysis (raster and vector data) and GIS data management.
ÅTrain the student to use GIS applications such as ArcGIS software.

Description :

Data collection : Remote sensed images, Characteristics, Rectification, Spatial and spectral enhancement, Classification and Vectorization ï Data analysis: Features elements (Vector/raster) cleaning, Attributes, Topology and query ï Map production : Data extraction and Symbolizing features.

Course outcomes :

a.Knowledge and Understanding: :	
1 -	a1. Define basic concepts of spatial analysis (raster and vector data) and GIS data management
2 -	a2. List some different types of data analysis such as roads network analysis, natural hazard, culture resources, land cover and land ownership.
3 -	a3. Define the information modeling process.
b.Intellectual Skills: :	
1 -	b1. Analyze spatial data.
2 -	b2. Differentiate between vector and raster spatial data.
c.Professional and Practical Skills: :	
1 -	c1. Visualize Data into forms.
2 -	c2. Use geographic information system software ArcGIS 10.5 to build information model.
3 -	c3. Manage geographic problems with GIS software
d.General and Transferable Skills: :	
1 -	d1. Use Google maps

Course Topic And Contents :

Topic	No. of hours	Lecture	Tutorial / Practical
Introduction to remote sensing as spatial data source	4	2	2
Characteristics of satellite raster data as the most important GIS data capture	4	2	2

Course Topic And Contents :

Topic	No. of hours	Lecture	Tutorial / Practical
What is geographic information science and how does it relate to the use of GIS for scientific purposes Urban planning project	4	2	2
What exactly geographic information analysis	8	4	4
Vector and raster data structures	4	2	2
Geospatial data and its representation vector model and its topology	16	8	8
Georeferencing, projection and coordinate system	12	6	6
Geographic data model, Digital Elevation Model (3D raster analysis)	4	2	2
Regional planning final project	4	2	2

Teaching And Learning Methodologies :

Lectures.

Practical Work.

Course Assessment :

Methods of assessment	Relative weight %	Week No	Assess What
Assignments	20.00		
Attendance and evaluation.	10.00		
Final Exam.	40.00		
First midterm exam.	10.00		
Second midterm exam.	20.00		

Course Notes :

No Course notes

Recommended books :

1. Text Book:
by Longley, Goodchild, Maguire, and Rhind, Geographic Information Systems and Science,
2nd Edition, Wiley or ESRI Press, 2017.
2. ESRI web site (http://www.esri.com
3. An Electronic form of the Course Notes and all the slides of the Lectures is available
on the Students Learning Management System (Moodle).
4. Handouts

Periodicals :

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Web Sites :

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