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**Department of: Soil & Water**

**College of: Agriculture**

**University of: Salahaddin-Erbil**

**Subject: GIS /Practical**

**Course Book: 4th Year Student**

**Lecturer's name: MSc. Dashne A. Kareem**

**Academic Year: 2019/2020**

**Course Book**

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| **1. Course name** | **Second semester/Spring semester** |
| **2. Lecturer in charge** | **Dashne Ali Kamal Kareem** |
| **3. Department/ College** | **Forestry/Agriculture** |
| **4. Contact** | **e-mail: dashne.kareem@su.edu.krd****Tel: 0750 122 4046** |
| **5. Time (in hours) per week**  | **Practical: 3**  |
| **6. Office hours** | **12 hours**  |
| **7. Course code** | **-** |
| **8. Teacher's academic profile**  | **BSc in Plant Production department / College of Agriculture / Salahaddin University-Erbil since 2002. Working as Demonstrator at soil and water science department for nine years. MSc in Soil Science ( Remote sensing & GIS) at 2014.** |
| **9. Keywords** |  |
| **10. Course overview:** In general, there are a few slice of people have enough information about GIS. This course is a practical part of GIS for this reason we chose software to be gate for introducing with a principals of GIS. The software which we study it is ArcMap version 10.4, actually this version is old somewhat but in same time it’s easy for using and has not a licensing problem. In this course we will study the maximum knowledge about how satellites works, types of satellite images including DEM, pixel values, image processing, and different algorithms application on satellite images using ArcMap version 10.4 software. As well as, studding the vegetation cover assessment, isolation, classification, calculation, and outputting. On the other hand, studding the classification techniques is one of our course aims for both type supervised and unsupervised. At the end of this course the student should have a good knowledge on satellite images, how satellite works, and how we can exploitation those information in order to make the earth management more easier. |
| **11. Course objective:**1. To learn how to use ArcMap ver. 10.4 software.
2. To collect knowledge about the product of GIS techniques (satellite images) and how use them.
3. To using GIS in agricultural purpose.
4. To imagine how GIS is useful.
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| **12. Student's obligation**In this course the student at every lecture should ready to quick test (quiz) of previous lectures. Whereas they asked about what we talked and studied in previous lecture. |
| **13. Forms of teaching*** Data show
* Presentation
* Remote computer controller
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| **14. Assessment scheme**‌

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| First examination  | 15 |
| Sum of daily quick tests (Quiz) | 5 |
| Final assessment  | 15+5= final mark |

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| **15. Student learning outcome:**Studding Forest Mapping course both section theoretical and practical is extremely important especially in agriculture. Because there are tons of applications including forest mapping, agriculture areas assessment, and vegetation cover classification, etc. As well as, GIS is in the beginning in Kurdistan relatively, and it makes more things become easily to farthest way that imagine. At the end of this course the students of forest department will have good information about satellite images and spectral signature of vegetation cover and also calculation of vegetation cover by using satellite images and ArcMap software. Also, make a final vegetation map for any area around the world, in addition more applications and techniques about using GIS.  |
| **16. Course Reading List and References‌:**▪ ArcMap User’s Guide, 2008. ERDAS, Inc.▪ http://www.hexagongeospatial.com/products/producer-suite/er-mapper▪ http://www.usgs.gov/ |
| **17. The Topics:** | **Mr. Fuad M. Ahmad** |
| **18. Practical Topics**  | **Lecturer's name** |
|  Introduction to ArcMap* Definition of ArcMap software
* History of ArcMap software
* ArcMap software installation
* ArcMap software user interface
* ArcMap software toolbars
* ArcMap software main menus
 | Dashne A. Kareem(3 hrs) |
| Viewing images* Mouse cursor during ArcMap
* Open/close new window
* Load image
* Moving window
* Resizing window
* Zooming options
* Panning image
 | Dashne A. Kareem (3 hrs) |
| * Arc catalog
* Add data
* How to add image
 | Dashne A. Kareem (3 hrs) |
| * Drawing point
* Drawing line
* Drawing polygon
 | Dashne A. Kareem(3 hrs) |
| * Trace tool
* Modify feature
 | Dashne A. Kareem(3 hrs) |
| * Edit tool
* Layer source
 | Dashne A. Kareem(3 hrs) |
| * Adding field
* Label feature
 | Dashne A. Kareem (3 hrs) |
| * Pie chart
* Bar chart
 | Dashne A. Kareem(3 hrs) |
| * Theme classification
* Remove theme classification
 | Dashne A. Kareem(3 hrs) |
| * Line area
 | Dashne A. Kareem (3 hrs) |
| * Georeferencing
 | Dashne A. Kareem (3 hrs) |
| * Data frame tools
* How to remove the boundary between the polygon
 | Dashne A. Kareem (3 hrs) |
| * Table font size and color
* Find and replace
 | Dashne A. Kareem (3 hrs) |
| * Layout
* Title
* North arrow
 | Dashne A. Kareem (3 hrs) |
| * Scale bar
* Legend
* Neat line
 | Dashne A. Kareem (3 hrs) |
| **19. Extra notes:**All examination will be computer based (practical), so the students will answer all questions using ArcMap software on computer and also write all steps they performed. |
| **20. Peer review پێداچوونه‌وه‌ی هاوه‌ڵ**   |