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| Faculty of Engineering  at Shoubra | Logo-BenhaBenha University Model No.12Course Specifications: Photo Interpretation and Remote Sensing |   |
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| **University** : Benha university |

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| **Faculty** : Faculty of Engineering at Shoubra |

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| **Department offering the program :** Surveying Engineering Department |
| **Department offering the Course :** Surveying Engineering Department |
| **1- Course Data**  |
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| Course Code : SUR411 | Course Title : Photo Interpretation and Remote Sensing | Study Year : Fourth Year |
| Specialization :  | Surveying Engineering Compulsory  |
| Teaching Hours:  |
| Lecture : 3 | Tutorial : 1 | Practical : 1 |  |

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| **2-  Course Aims**  |
| For students undertaking this course, the aims are to: |
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| 2.1- Conceive the concepts associated with the related applications of photo interpretation and remote sensing systems in a way that project the actual uses of those two in the Egyptian field of interest.2.2- Interpret a satellite image specifying different aspects of land cover and land uses  |

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| **3- Intended Learning Outcomes of Course (ILOS)**  |
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| **a-  Knowledge and Understanding**  |
| On completing this course, students will be able to: |
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| a1 Identify different approaches of solving engineering issues, data collection and interpretation. (a5) |
| a2 Recognize different remote sensing forms and different data sources (field-maps-images). (a14) |
| a3 Explain remote sensing process, from data capturing up to information extraction. (a16)  |

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| **b-  Intellectual Skills**  |  |
| At the end of this course, the students will be able to: |  |
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| b1 Assess the rectification process of satellite images using different geometric models(b11).  |
| b2 Determine different uses of satellite images(b15).  |

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| **c-  Professional Skills** |  |
| On completing this course, the students are expected to be able to: |  |
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| c1 Evaluate horizontal accuracy of the orthorectified images. (c10) |
| c2 Perform spatial analysis for the orthorectified satellite images using GIS(c17).  |

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| **d-  General Skills**  |  |
| At the end of this course, the students will be able to: |  |
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| d1 Work in team work for a remote sensing pilot project.  |

(d6) |  |
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| **4- Course Contents**  |
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| **No.** | **Topics** |
| 1 | Introduction to Visual Image interpretation |
| 2 | Multispectral, thermal and hyperspectral sensing |
| 3 | Earth resource satellite operating in the optical spectrum |
| 4 | Principles of digital image Processing |
| 5 | Production of topographic maps from satellite imagery |
| 6 | LandSat 1-2-3-4-5 |

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| **5- Teaching and Learning Methods**  |
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| 5.1- Lectures  |
| 5.2- Practical training / laboratory  |
| 5.3- Project work 5.4- Reports 5.5- Computer based work  |

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| **6- Teaching and Learning Methods of Disables** |
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| 6.1- N. A.  |

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| **7- Student Assessment**  |
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| **a- Student Assessment Methods** |
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| 1 | Mid-term exam   |
| 2 | Oral exam   |
| 3 | Final exam   |
| 4 | Project   |

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| **b- Assessment Schedule** |  |
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| **No.** | **Assessment** | **Week** |
| 1 | Mid-term exam | 8 |
| 2 | Oral exam | 14 |
| 3 | Final exam | 15 |
| 4 | Project | 12 |

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| **c- Weighting of Assessments** |  |
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| **Assessment** | **Weight** |
| Mid-term Examination | 10 % |
| Final Term Examination | 60 % |
| Oral Examination | 20 % |
| Semester work | 10 % |
| Other types of assessment | 0 % |
| Total | 100 % |

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| **8- List of References**  |
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| **a- Course Notes** |
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| 1- Course notes prepared by instructor.  |

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| **b- Books** |
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| 1- Lillesand, T.M., Kiefer, R.W. and Chipman, J.W., 2008. Remote Sensing and Image Interpretation. Sixth Edition, John Willey & Sons, Inc.  |
| 2- Schowengerdt, R.A., 2006. Remote Sensing: Models and Methods for Image Processing. Third Edition, Elsevier Inc., USA.  |
| 3- John A. Richards and Xiuping Jia, 2006. Remote sensing digital image analysis, Springer, Germany. |
| 4- Chen, C. H., 2008, Image processing for remote sensing .Taylor & Francis Group, LLC., USA. |
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| **c- Web Sites** |
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| 1- www.Imagery-Central.com  |
| 2- www.spotimage.fr/html  |
| 3- www.fes4surveying.wordpress.com  |

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| Faculty of Engineering  at Shoubra | Model No.11ACourse Specifications : Photo Interpretation and Remote Sensing | Benha university |
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| **University** : Benha university |

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| **Faculty** : Faculty of Engineering at Shoubra |

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| **Department** : Surveying Engineering Department  |

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| **Matrix of Knowledge and Skills of the course**  |
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| **No.** | **Topics** | **week** | **Basic Knowledge** | **Intellectual Skills** | **Professional Skills** | **General Skills** |
| 1 | Introduction to visual image interpretation | 1 | a1 |  |  |  |
| 2 | Introduction to visual image interpretation | 2 | a1 | b1 | c1 |  |
| 3 | Introduction to visual image interpretation | 3 | a1 | b1 | c2 |  |
| 4 | Multispectral, thermal and hyperspectral sensing | 4 | a2 | b1 |  | d1 |
| 5 | Multispectral, thermal and hyperspectral sensing | 5 | a2 | b1 |  |  |
| 6 | Earth resource satellite operating in the optical spectrum | 6 | a2 | b2 |  |  |
| 7 | Earth resource satellite operating in the optical spectrum | 7 | a2 |  |  |  |
| 8 | Midterm Exam | 8 | - | - | - | - |
| 9 | Principles of digital image Processing | 9 |  |  | c2 | d1 |
| 10 | Principles of digital image Processing | 10 |  | b2 | c1 |  |
| 11 | Production of topographic maps from satellite imagery | 11 | a1 |  |  | d1 |
| 12 | Production of topographic maps from satellite imagery | 12 |  | b1 | c2 |  |
| 13 | LandSat 1-2-3-4-5 | 13 |  | b2 | c1 |  |
| 14 | Oral Exam | 14 | - | - | - | - |
| 15 | Final exam | 15 | - | - | - | - |

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|  | **The Matrix of The Relation Between The Course’ Aims The ILOS of The Course** |
| **No** | **Photo Interpretation and Remote Sensing** | **a1** | **a2** | **a3** | **b1** | **b2** | **c1** | **c2** | **d1** |
| 1 | Conceive the concepts associated with the related applications of photo interpretation and remote sensing systems in a way that project the actual uses of those two in the Egyptian field of interest. | √ | √ |   | √  |   |   |   |   |
| 2 | Be able to interpret a satellite image specifying different aspects of land cover and land uses. |  |   | √ |   | √  |  √ |  √ | √  |

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| **- Course Coordinator :    Nader Ismail Hasan Ismail** |

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| **- Head of Department :   Mohamed Ibrahim Moustafa Zahran Date: 6 / 9 / 2015** |