**Course Specification**

**(**IT 442 Image Processing-2**)**

|  |  |
| --- | --- |
| **University:** | Helwan University |
| **Faculty:** | Faculty of Computers & Information |
| **Department:** | Information Technology |

**1. Course Data**

|  |  |
| --- | --- |
| **Code:** | **IT 442** |
| **Course title:** | Image Processing-2 |
| **Level:** |  |
| **Specialization:** | CS&IT |
| **Credit hours:** | 3 hours |
| **Number of learning units (hours):** | ( 3) theoretical (2 ) practical |

**2. Course Objective**

The course aims at teaching students more advanced techniques for digital image processing for understanding and recognizing images.

**3. Intended Learning Outcomes:**

1. **Knowledge and Understanding**

A21. Identify the fundamentals of Image processing.

1. **Intellectual Skills**

B20. Generate methodologies for Problem Solving.

B25. Apply Communications skills.

1. **Professional and Practical Skills**

C29. Use of Multimedia system.

1. **General and Transferable Skills**

D4. Practice Analytical thinking techniques.

**4. Course contents**

|  |  |
| --- | --- |
| **Topic** | |
| Revision on basic topics from image processing 1 |
| Wavelets and multiresolution analysis |
| Image Morphology |
| Principal components and basic techniques for recognizing images. |
| Color image processing |
| Image Segmentation |

**Mapping contents to ILOs**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Topic | Intended Learning Outcomes (ILOs) | | | |
| Knowledge and understanding | Intellectual Skills | Professional and practical skills | General and Transferable skills |
| Revision on basic topics from image processing 1 | A21 |  |  |  |
| Wavelets and multiresolution analysis | A21 |  |  |  |
| Image Morphology | A21 |  |  |  |
| Principal components and basic techniques for recognizing images. | A21 |  |  |  |
| Color image processing | A21 |  | C29 |  |
| Image Segmentation | A21 | B20, B25 |  | D4 |

**5. Teaching and Learning Methods**

* Lectures, and class work

**6. Teaching and Learning Methods for students with limited capability**

* Using data show
* e-learning management tools

**7. Students Evaluation**

1. **Used Methods**

* Written HW, Computer exercises, and exams.

1. **Time**

* Weekly.

1. **Grades Distribution**

Mid-Term Examination 20%

Final-term Examination 50%

Oral Examination. %

Practical Examination 10%

Semester Work and Project 20%

Other types of assessment %

Total 100%

**List of Books and References**

**a) Notes**

* Lecture Notes
* References (text and other references)

**b) Mandatory Books**

Gonzalez: “Digital Image Processing”

**c) Suggested Books**

**d) Other publications**

- Periodicals, Web Sites … etc

**Course Coordinator: Dr. Waleed Yousif**

**Chairman of the Department: Prof. Dr.**