

EC538- Selected Topics in Electronics

CREDIT HOURS

3 Hours

CONTACT HOURS (Hours/week)

Lecture: 2; Tutorial: 2

COURSE COORDINATOR

Dr. Khaled Shehata

TEXT BOOK

Luca Sterpone, "Electronics System Design Techniques for Safety Critical Applications, Springer

COURSE DESCRIPTION

Selection from modern topics in electronics.

PREREQUISITE:

EC 434

RELATION OF COURSE TO PROGRAM

Elective

COURSE INSTRUCTION OUTCOMES

The student will be able to understand Digital image processing techniques and applications are introduced.

TOPICS COVERED

- Introduction to Image Processing
- Digital Image fundamentals
- Image Transforms
- Image Enhancement
- Image Filtration
- Image Filtration /7th week exam
- Edge detection
- Image restoration
- Image segmentation
- Color fundamentals
- Color Image Processing
- Morphological image processing
- Image compression

CONTRIBUTION OF COURSE TO MEET THE REQUIREMENTS OF CRITERION 5:

| Professional component Content | | | |
|---------------------------------------|---------------------------|--------------------------|--------------|
| Math and Basic Sciences | Engineering Topics | General Education | Other |
| | ✓ | | |

RELATIONSHIP OF COURSE TO STUDENT OUTCOMES:

| Student Outcomes | | Course aspects |
|-------------------------|---|---|
| A | An ability to apply knowledge of mathematics, science, and engineering | |
| B | An ability to design and conduct experiments, analyze and interpret data. | b ₁ b ₂ b ₃ b ₄ |
| C | An ability to design a system, component, or process to meet desired needs within realistic constraints such as economics, environmental, social, political, ethical, health, and safety, manufacturability, and sustainability | c ₁ c ₂ c ₃ |
| D | An ability to function on multi-disciplinary teams. | |
| E | An ability to identify, formulate, and solve engineering problems | e ₁ e ₂ e ₃ |
| F | An understanding of professional and ethical responsibility | |
| G | An ability to communicate effectively | |
| H | The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and social content | |
| I | A recognition of the need for, and an ability to engage in life-long learning. | |
| J | A knowledge of contemporary issues within and outside the electrical engineering profession. | j ₁ j ₂ |
| k | An ability to use the techniques, skills, and modern engineering tools necessary for electrical engineering practice. | k |