Syrian Arab Republic

Higher Institute for Applied Sciences and Technology

Course Specification Document

Title	**Electronics Workshop**

Credits	3.5 ECTS

Aims	This course aims to teach the student how to design, implement, and test an electronic systems that serves a specific purpose, with a focus on linking theoretical concepts to practical applications in the process of designing, simulating, and implementing the electronic circuits that make up the system.

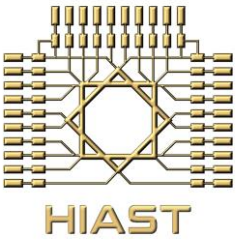
Intended learning outcomes

On successful completion of this course, the student will be able to:

- Develop terms and conditions booklet for the system to be designed and implemented.
- Create a block diagram for a mini- project and design this project from top to bottom.
- Identify common electronic components and methods for describing them and read their technical datasheets.
- Comprehend the methodology of designing electronic circuits, and select the appropriate components for the design.
- Perform electronic circuit simulation using a suitable simulation software.
- Implement electronic circuits using a test board.
- Test electrical and electronic circuits, detect errors, track practical problems and solve them.
- Convert electronic models using a suitable printed circuit design program to obtain preliminary engineering prototype.

Syllabus

- **Develop Write terms and conditions booklet:** Explaining and understanding the issue at hand, determining the electrical specifications of the circuit, describing the inputs and outputs and the specifying the system's operating environment.
- **Electronic elements and their description:** Common electronic elements, reading electrical specifications for basic active and inactive electronic elements, types of electronic elements and how to use them, reading technical datasheets and using this information in developing the required electronic design.
- **Electrical and electronic circuit design methodology:** Developing the block diagram for the project, dividing the circuit into functional partial blocks, identifying the appropriate electronic and electrical elements for the design, developing the electronic diagram for each part of the blocks.



- **Master the simulation of electrical and electronic circuits:** Implementing parts of the project using a computer and drawing the electrical diagram of the circuit using a simulation program, to ensure the validity of the electronic design.
- **Completing and testing electronic circuits:** Placing the electronic components and testing them on the test board, converting the electronic diagram into a printed circuit, assembling the electronic circuit parts, ensuring the correct implementation of each part of the block diagram, troubleshooting and resolving errors and issues in electronic circuits, final testing.