

Ministry of Higher Education and Scientific Research

Supervision and Scientific Evaluation Department

Quality Assurance and Academic Accreditation Office

Workshops Technology Course Description

The template provides a summary of the main course features and expected student learning outcomes.

1. Educational Institution	Shatt Al-Arab University
2. Department / Center	Department of Laser and Optoelectronics Engineering
3. Course Title /Code	Workshops Technology/ ATU15017
4. Lecturer Name	Dhuha Habeeb Mtashar
5. Type of Teaching	Attendance
6. Academic Year /Term	Term
7. Total No. of Teaching Hours	١٠٠
8. Date of Preparing this Course Description	30/7/2025

1. Course Objectives

1. Develop practical skills in operating electronics workshops, focusing on safety procedures and proficiency in using measuring devices and tools.
2. Acquire knowledge and techniques related to welding, soldering, and handling electronic components on printed circuit boards.
3. Gain familiarity with various electronic components and circuits, and understand their behavior through practical manufacturing and experimentation.
4. Understand the principles of parallel and series circuits involving resistors and capacitors, and apply them in practical situations.
5. Enhance the ability to read and interpret electronic boards, and to design and assemble electronic circuits on printed boards.

2. Course Output, Methodology and Evaluation

(A) Cognitive Objectives

- Understand electronics fundamentals, components, and circuit principles.
- Interpret and analyze circuit diagrams and boards.
- Apply knowledge to troubleshoot and solve circuit problems.

(B) Skill Objectives Related to the Program:

- Operate electronics workshop tools and equipment safely.
- Perform welding, soldering, and component installation on printed boards.
- Construct, test, and troubleshoot electronic circuits.
- Read, design, and assemble electronic boards accurately.

(C) Methods of Teaching and Learning

- The course uses brief interactive lectures, hands-on labs with live software demos, self-paced tutorials, and quick quizzes/projects for continuous feedback.

(D) Methods of Evaluation

- **Oral Tests:** Assessing students' understanding through verbal responses.
- **Monthly Tests:** Evaluating students' knowledge and progress on a monthly basis.
- **Daily Quizzes:** Regular quizzes to gauge students' grasp of material covered each day.
- **Regular Attendance:** Monitoring and evaluating students' consistent participation in classes.

(E) Sentimental and Value Objectives

- **Ethical Understanding:** Promoting respect, integrity, and social responsibility.
- **Attitudes and Values:** Fostering positive attitudes towards learning, collaboration, and ethical behavior.

(F) General and Qualitative Skills (other skills related to the ability of employment and personal development)

- Develop students' leadership skills.
- • Improve students' proficiency in presenting technical information, writing reports, and explaining results.
- • Develop students' technical skills through their participation in practical experiments related to Workshops Technology.
- • Encourage students to adapt to new technologies and methodologies related Workshops Technology.

3. Course Structure

Week	No of Hours	Required Learning Output	Title of Subject	Teaching Method	Evaluation
١		• Apply safety standards, identify tools, and perform basic operations in foundry, filing, carpentry, turning, and welding workshops.	Occupational Safety, Foundry Workshop, Files type Workshop, Carpentry Workshop, Turnery workshop, Welding types Workshop	Lectures and discussions	Oral tests and questions
٢		• Use various measuring devices, identify types of caustic, and perform welding using caustic safely and effectively.	Learn how to use different measuring devices in the workshop, Learn how to use caustic, types of caustic, welding by using caustic	Lectures and discussions	Oral tests and questions
٣		• Identify welding types and auxiliary materials, perform wire welding with components, and use soldering tools to remove electronic parts from printed boards.	Types of welding, Auxiliary materials for welding, wires welding between them and with other components . •Sucker solder and Solder removal, Training to remove some of the electronic components of the	Lectures and discussions	Oral tests and questions

			printed board		
٤		Identify types of printed boards, apply printing and drilling methods, and install various electronic components	Learn different types of printing board through printing method, drilling operation, Install the various components	Lectures and discussions	Oral tests and questions
٥		Identify and manufacture different electronic components, measure resistance using various methods, and build, connect, and test parallel, series, and combined resistance circuits.	Different types of electronics components through manufacturing for example the resistance and its power, measure the value of resistance in different methods, rheostat, Parallel resistance circuit - series resistance circuit - parallel and series resistance circuits - and check it.	Lectures and discussions	Oral tests and questions
٦		Identify types of capacitors, switches, fuses, inductors, and transformers, and build, connect, and test parallel, series, and combined capacitance circuits on the board.	Types of capacitance 14-15 Parallel capacitance circuit - series capacitance circuit - parallel and series capacitance, circuit - check it on the board, Switch types, Fuses types, Inductor types, Transformer types	Lectures and discussions	Oral tests and questions
٧		Identify types of capacitors, switches, fuses, inductors, and transformers, and build, connect, and test parallel, series,	- Types of capacitance 14-15 Parallel capacitance circuit - series capacitance circuit - parallel	Lectures and discussions	Oral tests and questions

		and combined capacitance circuits on the board.	and series capacitance, circuit - check it on the board, Switch types, Fuses types, Inductor types, Transformer types		
^		Read and interpret electronic boards, design printed boards, install components, and weld them accurately on the board.	Learn how to read electronic board, Students learn to design electronic board on the printed board, install the component on the board, and welding the components on the board.	Lectures and discussions	Oral tests and questions
9		Read and interpret electronic boards, design printed boards, install components, and weld them accurately on the board.	Learn how to read electronic board, Students learn to design electronic board on the printed board, install the component on the board, and welding the components on the board.	Lectures and discussions	Oral tests and questions
10		Identify types of files and perform filing operations accurately and safely in the workshop.	Files type Workshop	Lectures and discussions	Oral tests and questions

5. Learning and Teaching Resources

Textbooks	1 Digital principles and applications, by Albert Paul Malvino, 2nd Edition. 2. Digital Logic Circuits by D.A.Godse A.P.Godse, Technical Publications 200
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6. Course Improvement Plan

- • Updating and expanding the curriculum content to include modern developments and applications related to Workshops Technology.