

COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification.

1. Teaching Institution	Al-Rasheed University College
2. University Department/Centre	Department of Medical Devices
3. Course title/code	Engineering Workshops
4. Programme(s) to which it contributes	Weekly
5. Modes of Attendance offered	workshops and labs
6. Semester/Year	2021-2022
7. Number of hours tuition (total)	120
8. Date of production/revision of this specification	14/4/2022
9. Aims of the Course	
	1- Providing the student with manual experience and scientific proficiency in dealing with tools, devices and electrical equipment
	2- Learn about the safe handling of devices, equipment and industrial security.
	3- Recognize electronic components.
	4- Electronic components are used to build and solder simple circuits.
	5- Examines electronic circuits and their components.
	6- Recognize the methods of cold and work on the lathe.
	7- It cuts metal with cutting and punching bales.
	Install some simple structures. -1

10. Learning Outcomes, Teaching ,Learning and Assessment Methode

<p>A- Knowledge and Understanding</p> <p>A1- Familiarize yourself with engineering devices and equipment</p> <p>A2- Learn about electronic components</p> <p>A3- Understand the principles of electrical appliances</p> <p>A4- Learn the methods of welding, cutting and perforating metals and mechanical turning</p> <p>A 5- He learns the techniques of safe handling in the work environment and industrial safety.</p>
<p>B. Subject-specific skills</p> <p>B1 - Able to install simple structures for medical devices and equipment</p> <p>B2 - Design of simple electrical circuits</p> <p>B3 - Be able to check electronic circuits</p> <p>B4- Safe operation and handling of mechanical equipment</p>
<p>Teaching and Learning Methods</p>
<p>Practical experiments - manufacturing primary structures - workshops - laboratories</p>
<p>Assessment methods</p>
<p>Daily assessment - weekly assessment - quarterly assessment - objective questions - general questions - practical tests</p>
<p>C. Thinking Skills</p> <p>C1- The student should pay attention to the professor's explanation</p> <p>C2- That the student knows the impact of science and scientists on life</p> <p>C 3- The student should take care of calm and the order of the class</p> <p>C4- The student should describe the importance of workshops and laboratories in practical life</p> <p>C5 - That the student feel what the victims of racial discrimination suffer</p>
<p>Teaching and Learning Methods</p>
<p>Seminars - meetings - conferences - extra-curricular activities - educational guidance and education</p>
<p>Assessment methods</p>
<p>Evaluation of extra-curricular activities - attending courses, seminars, conferences</p>

<p>D. General and Transferable Skills (other skills relevant to employability and personal development)</p> <p>D 1- Library skills outside the scientific subject</p> <p>D2- The student's ability to form structures for medical devices</p> <p>D 3- The student's ability to connect electronic circuits and electrical installations</p> <p>D4- The student's ability to participate in extra-curricular activities (sports, poetry, prose, rhetoric, humanities)</p>
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11. The course structure of the mechanical workshop					
Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1 st	4	The student understands the lesson	Lathe workshop: various measuring devices and how to use them.	Practical lab workshop	Weekly theory and practical exams
2 nd	4	The student understands the lesson	How to operate the lathe and use different tools and cutting tools.	Practical lab workshop	Weekly theory and practical exams
3 rd	4+4+4	The student understands the lesson	How to install a pole on the lathe, making a straight lathe.	Practical lab workshop	Weekly theory and practical exams
4 th and 5 th	4+4	The student understands the lesson	Training on the use of the lathe in the work of different forms.	Practical lab workshop	Weekly theory and practical exams
6 th	4	The student understands the lesson	Barrel workshop: the different types of files, saws, and different measuring equipment and their uses.	Practical lab workshop	Weekly theory and practical exams
7 th	4	The student understands the lesson	Practicing the plumbing and simple filing.	Practical lab workshop	Weekly theory and practical exams
8 th	4	The student understands the lesson	An exercise in cutting with a saw, training in the process of drilling and burring, and a simple exercise on it.	Practical lab workshop	Weekly theory and practical exams
9 th	4	The student understands the lesson	Welding and gas welding, familiarization with the devices and equipment used	Practical lab workshop	Weekly theory and practical exams
10 th	4	The student understands the lesson	Lathe workshop: various measuring devices and how to use them.	Practical lab workshop	Weekly theory and practical exams
11 th	4	The student understands the lesson	How to operate the lathe and use different tools and cutting tools.	Practical lab workshop	Weekly theory and practical exams
12 th	4	The student understands the lesson	How to install a pole on the lathe, making a straight lathe.	Practical lab workshop	Weekly theory and practical exams
13 th	4	The student understands the lesson	Training on the use of the lathe in the work of different forms.	Practical lab workshop	Weekly theory and practical exams
14 th	4	The student understands the lesson	Training in the use of electric welding in a simple exercise	Practical lab workshop	Weekly theory and practical exams
15 th	4	The student understands the lesson	Point welding, familiarization with the devices and equipment used and carrying out a simple exercise	Practical lab workshop	Weekly theory and practical exams
The course structure for the electrical workshop					
1 st	4	The student understands the lesson	Principles of industrial safety inside electrical workshops - protection from electric shocks - identification of the tools used inside the electrical workshop - sources of power - training in the use of the oven, the micrometer to	Practical lab workshop	Weekly theory and practical exams

			measure the wires used in the coil.		
2nd	4	The student understands the lesson	Method of using different types of soldering irons (different pans) blister soldering irons.	Practical lab workshop	Weekly theory and practical exams
3rd	4+4+4	The student understands the lesson	Electrical transformers - their types - magnetic circuit - electrical circuits - opening transformers - taking information from the old transformer for primary and secondary coils - measuring the wire diameters of the transformer - measuring the plastic coil mold - rewinding the primary and secondary coils.	Practical lab workshop	Weekly theory and practical exams
4th and 5th	4+4	The student understands the lesson	Types of electric motors (one and three phases) Example - shaded pole motor (small water pump motor) Motor work - disassemble it Take information - make mold - winding coils - put insulators - connect terminals - banding - varnish insulation - inspection and testing - faults that can occur in the engine (electrical and mechanical).	Practical lab workshop	Weekly theory and practical exams
6th	4	The student understands the lesson	Electrical installations, their types (virtual) - burial inside pipes - semi-establishment - drawing of a circuit for establishing lamps with a control circuit - a practical exercise on establishing the circuit.	Practical lab workshop	Weekly theory and practical exams
7th 8th 9th	4 4 4	The student understands the lesson	Draw a circuit for establishing two lamps in parallel with a switch with a socket. Application of the circuit in practice - Drawing of the internal connection of the fluorescent lamp circuit - Replacing one of the two lamps with a fluorescent lamp	Practical lab workshop	Weekly theory and practical exams
10th	4	The student understands the lesson	Drawing a circuit for establishing (the lamp ladder) two roads using a two-way switch - a practical application of the circuit.	Practical lab workshop	Weekly theory and practical exams
11th	4	The student understands the lesson	Identifying electrical collectors - their types - their use - thermal follow-ups - time position.	Practical lab workshop	Weekly theory and practical exams

12 th	4	The student understands the lesson	Single-sided motor operation by pneumatic pickup with push-button.	Practical lab workshop	Weekly theory and practical exams
13 th	4	The student understands the lesson	Starting a motor and changing the direction of rotations of a single-phase motor using the pickups and the time stop.	Practical lab workshop	Weekly theory and practical exams
14 th	4	The student understands the lesson	Training on making electrical installations (establishing inside tubes).	Practical lab workshop	Weekly theory and practical exams
15 th	4	The student understands the lesson	Pipe cutting process - dental work - pipe bending - using drag springs.	Practical lab workshop	Weekly theory and practical exams
The course structure for the electronic workshop					
1 st	4	The student understands the lesson	How to use the different measuring devices in the workshop (such as an ovometer, oscilloscope, power supply,).	Practical lab workshop	Weekly theory and practical exams
2 nd	4	The student understands the lesson	How to use caustics - types of caustics used in the workshop - caustic welding training.	Practical lab workshop	Weekly theory and practical exams
3 rd	4	The student understands the lesson	Types of solder used - auxiliary materials for soldering - soldering some wires with each other and with some components.	Practical lab workshop	Weekly theory and practical exams
4 th	4	The student understands the lesson	How to use soldering iron - soldering absorbent kit such as (Solder Sucker) soldering absorbent (Solder Remover), training on some electronic components and lifting them from the printed board.	Practical lab workshop	Weekly theory and practical exams
5 th	4	The student understands the lesson	Various printed electronic circuits, identifying how to install them and the installation of various electronic components on them.	Practical lab workshop	Weekly theory and practical exams
6 th , 7 th	4+4	The student understands the lesson	The different types of resistors in terms of the material the resistors are made of, the capacity they can withstand / each resistor How to read the values of the resistors in different ways Variable and special resistors (VDR-PYC-NTC) How to check them.	Practical lab workshop	Weekly theory and practical exams
8 th , 9 th	4+4	The student understands the lesson	Make a circuit to connect the resistors in series, make a circuit to connect the resistors in parallel, make a circuit to connect the resistors in series and parallel, check the circuit.	Practical lab workshop	Weekly theory and practical exams

10th	4	The student understands the lesson	The different types of capacitors in terms of the type of insulator used between the capacitor plates, the voltage that the capacitor bears, reading the values of the capacitors using the different methods used in coding. How to check the amplifiers and ways to switch them.	Practical lab workshop	Weekly theory and practical exams
11th	4	The student understands the lesson	Making circles to connect the capacitors in parallel, series and mixed on the printed board with the examination.	Practical lab workshop	Weekly theory and practical exams
,12th	4	The student understands the lesson	The different types of switches used in electronic devices and their examination methods, the current that each switch bears, the use of each type.	Practical lab workshop	Weekly theory and practical exams
13th,14th	4+ 4	The student understands the lesson	Types of fuses used in electronic circuits, types and diameters of used wires and diameters of wires used in fuses, current that each type bears, how to repair fuses.	Practical lab workshop	Weekly theory and practical exams
15th	4	The student understands the lesson	Coils types, methods of checking, electrical transformers, types, checking, autotransformer, the difference between autotransformer and normal transformer	Practical lab workshop	Weekly theory and practical exams
16^t	4	The student understands the lesson	Types of semiconductor diode, transistor, finding rewards	Practical lab workshop	Weekly theory and practical exams
17th	4	The student understands the lesson	Semiconductor check, diode check, transistor check	Practical lab workshop	Weekly theory and practical exams
18th	4	The student understands the lesson	Integrated electronic circuits, identify the types of these circuits	Practical lab workshop	Weekly theory and practical exams
19th	4	The student understands the lesson	Cautery for soldering integrated circuits, the correct method of soldering integrated circuits, removing solder from circuits for the purpose of lifting and replacing	Practical lab workshop	Weekly theory and practical exams
20th	4	The student understands the lesson	Presentation of a scientific film on the manufacture of electronic components (resistors, capacitors, semiconductors, etc.)	Practical lab workshop	Weekly theory and practical exams
21th	4	The student understands the lesson	How to read the electronic map, how to track faults on the electronic map	Practical lab workshop	Weekly theory and practical exams

22th	4	The student understands the lesson	Introduce the student to how to design electronic circuits on the printed board	Practical lab workshop	Weekly theory and practical exams
23th	4	The student understands the lesson	How to install and solder electronic components on the printed board	Practical lab workshop	Weekly theory and practical exams
24th	4	The student understands the lesson	Implementation of a simple electronic circuit on the printed board	Practical lab workshop	Weekly theory and practical exams
25th-30th	4+4+4+4+4+4+	The student understands the lesson	A field visit to one of the electronic manufacturing laboratories	Practical lab workshop	Weekly theory and practical exams

12. Infrastructure	
Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	Workshop lectures
Special requirements (include for example workshops, periodicals, IT software, websites)	
Community-based facilities (include for example, guest Lectures , internship , field studies)	

13. Admissions	
Pre-requisites	
Minimum number of students	10
Maximum number of students	15