MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

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| **Module Information**  معلومات المادة الدراسية | | | | | | | |
| **Module Title** | Engineering Workshops هندسية ورش | | | | **Module Delivery** | | |
| **Module Type** | Supportive | | | | * **Theory** * **Lecture**   **☒ Lab**   * **Tutorial** * **Practical** * **Seminar** | | |
| **Module Code** | MIE12206 | | | |
| **ECTS Credits** | 5 | | | |
| **SWL (hr/sem)** | 125 | | | |
| **Module Level** | | 1 | **Semester of Delivery** | | | | 2 |
| **Administering Department** | | MIE | **College** | MUC | | | |
| **Module Leader** | Mahdi Mohammed | | **e-mail** |  | | | |
| **Module Leader’s Acad. Title** | | lecturer | **Module Leader’s Qualification** | | | | M.Sc. |
| **Module Tutor** |  | | **e-mail** |  | | | |
| **Peer Reviewer Name** | | Dr.Noor Kadhim Meftin | **e-mail** | noor.kadhim@muc.edu.iq | | | |
| **Scientific Committee Approval Date** | | 12-6-2023 | **Version Number** | | | 1.0 | |

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| **Relation with other Modules**  العلاقة مع المواد الدراسية الاخرى | | | |
| **Prerequisite module** | None | **Semester** | None |
| **Co-requisites module** | None | **Semester** | None |

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| **Module Aims, Learning Outcomes and Indicative Contents**  أهداف المادة الدراسية ونتائج التعلم والمحتويات الارشادية | |
| **Module Aims**  أهداف المادة الدراسية | 1. To explain the lathe workshop: various measuring devices and how to use them. How to operate the lathe and use different tools and cutting tools. 2. To explain the welding and gas welding processes and familiarize yourself with the devices and equipment used. Point welding, familiarization with the devices and equipment used, and carrying out a simple exercise. 3. To understand the electrical transformers and their types: magnetic circuits; electrical circuits; measuring the wire diameters of the transformer. 4. To understand the drawing of a circuit for establishing (the lamp ladder) two roads using a two-way switch—a practical application of the circuit. 5. To learn how to use the different measuring devices in the workshop (such as a multimeter, oscilloscope, etc.). 6. To learn how to use caustics, soldering irons, and various printed electronic circuits, identify how to install them, and install various electronic components on them. 7. To understand different types of coils and methods of checking them. Different types of capacitors differ in terms of the type of insulator used between the capacitor plates and the methods of checking them. The different types of resistors, in terms of the material they are made of and the capacity they can withstand, How to read the values of the resistors in different ways Variable and special resistors: how to check them. 8. To understand the different types of switches used in electronic devices and their examination methods. Different types of fuses There are different types of resistors in terms of the material they are made of. Types of semiconductor diodes and transistors and finding the equivalents Semiconductor check, diode check, and transistor check. 9. To understand how to read the electronic map and how to track faults on the electronic map How to install and solder electronic components on the printed board Implementation of a simple electronic circuit on the printed board integrated electronic circuits: identify the types of these circuits. |

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| **Module Learning Outcomes**  مخرجات التعلم للمادة الدراسية | Upon completion of the course, students should be able to:   1. Recognize the methods of work on the lathe. 2. Cuts metals with a cutting and punching machine. 3. Install some simple structures. 4. Providing the student with manual experience and scientific proficiency in it. 5. Learn about electronic components. 6. Electronic components exchange is used to build and solder simple circuits. 7. Examine electronic circuits and their components. 8. Read the electronic map and learn how to track faults on the electronic map. 9. How to install and solder electronic components on the printed board. 10. Implementation of a simple electronic circuit on the printed board. 11. Removing solder from circuits for the purpose of lifting and replacing. 12. How to design electronic circuits on the printed board. 13. Methods of soldering integrated circuits. |
| **Indicative Contents**  المحتويات الارشادية | Indicative content includes the following:  Lathe workshop, measuring devices, different tools, cutting tools, welding, gas welding, and point welding. [8 hrs.].  Electrical transformers, magnetic circuit, and electrical circuits. [6 hrs.]. Different measuring devices in the workshop (such as an ovometer, oscilloscope, power supply, etc.) [8 hrs.].  Soldering iron and printed electronic circuits [4 hrs.]. Coils, capacitors, and resistors [6 hrs.].  Switches and fuses [4 hrs.].  Semiconductor diode, and transistor [6 hrs.].  Electronic map, faults on the electronic map, and design electronic circuits on the printed board [8 hrs.].  Implemented a simple electronic circuit on the printed board [4 hrs.].  Integrated electronic circuits [4 hrs.]. |

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| **Learning and Teaching Strategies**  استراتيجيات التعلم والتعليم | |
| **Strategies** | Daily assessment - weekly assessment - quarterly assessment - objective questions - general questions - practical tests. |

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| **Student Workload (SWL)**  الحمل الدراسي للطالب | | | | | | | | |
| **Structured SWL (h/sem)**  الحمل الدراسي المنتظم للطالب خلال الفصل | | | 63 | | **Structured SWL (h/w)**  الحمل الدراسي المنتظم للطالب أسبوعيا | | | 4 |
| **Unstructured SWL (h/sem)**  الحمل الدراسي غير المنتظم للطالب خلال الفصل | | | 62 | | **Unstructured SWL (h/w)**  الحمل الدراسي غير المنتظم للطالب أسبوعيا | | | 6.4 |
| **Total SWL (h/sem)**  الحمل الدراسي الكلي للطالب خلال الفصل | | | 150 | | | | | |
| **Module Evaluation**  تقييم المادة الدراسية | | | | | | | | |
|  | | **Time/Numb er** | | **Weight (Marks)** | | **Week Due** | **Relevant Learning**  **Outcome** | |
| **Formative assessment** | **Daily assessment** | 1 | | 10% (10) | | 3, 8 | LO # 1-2 and 4-6 | |
| **weekly**  **assessment** | 1 | | 10% (10) | | 9, 13 | LO # 3 and #4 | |
| **Projects / Lab.** | 1 | | 10% (10) | | Continuous |  | |
| **practical test** | 1 | | 10% (10) | | 2 | LO # 7 | |
| **Summative**  **assessment** | **Midterm Exam** | 2 hr. | | 10% (10) | | 7 | LO # 1-7 | |
| **Final Exam** | 3 hr. | | 50% (50) | | 14 | All | |
| **Total assessment** | | | | 100% (100  Marks) | |  |  | |

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| **Delivery Plan (Weekly Lab. Syllabus)**  المنهاج الاسبوعي للمختبر | |
|  | **Material Covered** |
| **Week 1** | Lab 1: Lathe workshop: various measuring devices and how to use them. How to operate the  lathe and use different tools and cutting tools |
| **Week 2** | Lab 2: Welding and gas welding, and familiarization with the devices and equipment used. Point welding, familiarization with the devices and equipment used, and carrying out a  simple exercise. |
| **Week 3** | Lab 3: Electrical transformers: their types magnetic circuits; 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 template  rewinding primary and secondary coils. |
| **Week 4** | Lab 4: Drawing a circuit for establishing two roads using a two-way switch is a practical  application of the circuit. Identifying electrical collectors-their types, their use, thermal follow-ups, and time position. |

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| **Week 5** | Lab 5: Training on making electrical installations (establishing inside tubes).Pipe cutting  process: dental work, pipe bending, using drag springs. |
| **Week 6** | Lab 6: How to use the different measuring devices in the workshop (such as a multimeter,  oscilloscope, etc.). |
| **Week 7** | Lab 7: How to use caustics: types of caustics used in the workshop; caustic welding training. Types of solder used: auxiliary materials for soldering; soldering some wires with each other and with some components. How to use a soldering iron and a soldering absorbent kit such as a solder sucker or solder remover, training on some electronic components, and lifting them from the printed plate. Various printed electronic circuits, identifying how to install them,  and the installation of various electronic components on them. |
| **Week 8** | Lab 8: Coil types, methods of checking them, electrical transformers, types, checking, auto- transformer, the difference between an auto-transformer and an ordinary transformer. The different types of capacitors in terms of the type of insulator used between the capacitor plates, the effort that the capacitor bears, and reading the values of the capacitors using the different methods used in coding How to check the amplifiers and how to switch them. Making connections of the capacitors in parallel, series, and mixed on the printed board with the  examination. |
| **Week 9** | Lab 9: The different types of switches used in electronic devices and their examination methods, the current that each switch bears, and the use of each type.Types of fuses used in electronic circuits, types and diameters of wires used and diameters of wires used in fuses,  the current that each type bears, and how to repair fuses |
| **Week 10** | Lab 10: The different types of resistors, in terms of the material they are made of and the capacity they can withstand, How to read the values of the resistors in different ways Variable and special resistors (VDR-PYC-NTC) how to check them. 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, and check the circuit. |
| **Week 11** | Lab 11: Types of semiconductor diodes and transistors and finding the equivalents.  Semiconductor check, diode check, transistor check |
| **Week 12** | Lab 12: How to read the electronic map and track faults on the electronic map.  Introduce the student to how to design electronic circuits on the printed board. |
| **Week 13** | Lab 13: How to install and solder electronic components on the printed board.  Implementation of a simple electronic circuit on the printed board. |
| **Week 14** | Lab 14: Integrated electronic circuits: identify the types of these circuits. Cautery for  soldering integrated circuits, the correct method of soldering integrated circuits, and |

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|  | removing solder from circuits for the purpose of lifting and replacing. |
| **Week 15** | **Preparatory week for the final Exam** |

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| **Learning and Teaching Resources**  مصادر التعلم والتدريس | | |
|  | **Text** | **Available in the**  **Library?** |
| **Recommended Texts** | 1. Encyclopedia of Electronic Components Volume 1 (Charles Platt). 2. Encyclopedia of Electronic Components Volume 2 (Charles Platt). 3. Encyclopedia of Electronic Components Volume 3 (Charles Platt). 4. Encyclopedia of Electronic Components Volume 4 (Charles Platt). 5. Encyclopedia of Electronic Components Volume 5 (Charles Platt). | NO |
| **Websites** | https:/[/www.electric](http://www.electricaltechnology.org/2013/03/how-to-remember-direction-of-pnp-)a[ltechnology.org/2013/03/how-to-remember-direction-of-pnp-](http://www.electricaltechnology.org/2013/03/how-to-remember-direction-of-pnp-)  and.html | |

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| **Grading Scheme**  مخطط الدرجات | | | | |
| **Group** | **Grade** | التقدير | **Marks**  **(%)** | **Definition** |
| **Success Group (50 - 100)** | **A -** Excellent | امتياز | 90 - 100 | Outstanding Performance |
| **B -** Very  Good | جيد جدا | 80 - 89 | Above average with some errors |
| **C -** Good | جيد | 70 - 79 | Sound work with notable errors |
| **D -**  Satisfactory | متوسط | 60 - 69 | Fair but with major shortcomings |
| **E -** Sufficient | مقبول | 50 - 59 | Work meets minimum criteria |
| **Fail Group (0 – 49)** | **FX –** Fail | راسب (قيد المعالجة) | (45-49) | More work required but credit  awarded |
| **F –** Fail | راسب | (0-44) | Considerable amount of work  required |
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| **Note:** Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above. | | | | |