**Course description form**

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| 1. **Course Name** | | | | | | | | |
| **Electrical Engineering Fundamentals I** | | | | | | | | |
| 1. **Course Code** | | | | | | | | |
| **EPE 103** | | | | | | | | |
| 1. **Semester/Year** | | | | | | | | |
| Fall Semester/First Year | | | | | | | | |
| 1. **The date this description was prepared** | | | | | | | | |
| 17 / 9 / 2023 | | | | | | | | |
| 1. **Available forms of attendance** | | | | | | | | |
| Face-to-Face theoretical lectures | | | | | | | | |
| 1. **Number of study hours (total) / number of units (total)** | | | | | | | | |
| 150/8 | | | | | | | | |
| 1. **Name of the course administrator** | | | | | | | | |
| Name: Assist. Prof. Wisam Najem Email: [wiasm\_alobaidee1@uodiyala.edu.iq](mailto:wiasm_alobaidee1@uodiyala.edu.iq) | | | | | | | | |
| 1. **Course objectives** | | | | | | | | |
| 1. This course deals with the basic concept of electrical circuits. 2. This is the basic subject for all electrical and electronic circuits. 3. To understand voltage, current and power from a given circuit. 4. To develop problem solving skills and understanding of circuit theory through the application of techniques. 5. To understand Kirchhoff's current and voltage Laws problems. 6. To perform mesh and Nodal analysis. | | | | **Objectives of the study subject** | | | | |
| 1. **Teaching and learning strategies** | | | | | | | | |
| **1.** **Behavior management**  Behavior management strategies foster an atmosphere of mutual respect, reduce disruptive behavior, and ensure students have an equal opportunity to fulfill their potential in the classroom. It's crucial to provide them with both a positive and productive learning environment. Examples include establishing a reward system with an interactive chart where students move up or down depending on their performance and behavior in class.  **2. Blended learning**  With a blended learning teaching strategy, technology is incorporated with traditional learning. This allows students to work at their own pace, research their ideas and become more physically engaged during lessons. Examples include providing interactive tablets or whiteboards with engaging activities and posting classwork online for easier access.  **3. Cooperative learning**  Group work is a cooperative learning strategy that allows students with various learning levels to work together. By encouraging them to express their own ideas and listen to others' ideas as a group, you help students develop communication and critical thinking skills. Examples include solving math puzzles together, performing skits as a team or working on group presentations.  **4. Formative assessment**  A formative assessment is used periodically to monitor student learning incrementally. This can more effectively measure the process of learning as opposed to end-of-unit tests and can help you to improve your teaching methods throughout the year. Examples of this teaching strategy include self-evaluation exercises and summarizing a topic in multiple ways.  **5. Student-led teaching**  The student-led teaching strategy lets students become teachers. In a classroom with learners at different levels, you can better engage those learning faster by showing them how to teach and give feedback to their peers. They may team-teach or work in groups to teach a new topic. Examples include letting a student teach an entire lesson or having advanced writers lead a peer-editing session as well as provide constructive criticism. | | | **The Strategy** | | | | | |
| 1. **Course structure** | | | | | | | | |
| **Evaluation method** | **Learning method** | **Required learning outcomes** | | | | **Name of the unit or topic** | **Hours** | **Week** |
| Daily, oral, monthly, written examinations and reports | Whiteboard and Data show | Understanding electrical circuits | | | | Introduction | 5 | 1 |
| Daily, oral, monthly, written examinations and reports | Whiteboard and Data show | Study the different elements of the circuit | | | | Circuit Variables and Circuit Element | 5 | 2 |
| Daily, oral, monthly, written examinations and reports | Whiteboard and Data show | Study the factors affecting resistance | | | | Temperature Coefficient and Receptivity | 5 | 3 |
| Daily, oral, monthly, written examinations and reports | Whiteboard and Data show | Study methods of connecting circuit elements | | | | Series and Parallel Resistances. | 5 | 4 |
| Daily, oral, monthly, written examinations and reports | Whiteboard and Data show | Study methods of connecting circuit elements | | | | Star and Delta Resistances. | 5 | 5 |
| Daily, oral, monthly, written examinations and reports | Whiteboard and Data show | Study the laws of circuits | | | | Ohms Law. | 5 | 6 |
| Daily, oral, monthly, written examinations and reports | Whiteboard and Data show | Study the laws of circuits | | | | Kirchhoff’s Laws. | 5 | 7 |
| Daily, oral, monthly, written examinations and reports | Whiteboard and Data show | Study the laws of circuits | | | | Kirchhoff’s Laws. | 5 | 8 |
| Daily, oral, monthly, written examinations and reports | Whiteboard and Data show | Learn about methods of analyzing electrical circuits | | | | Mesh current analysis | 5 | 9 |
| Daily, oral, monthly, written examinations and reports | Whiteboard and Data show | Learn about methods of analyzing electrical circuits | | | | Node Voltage analysis | 5 | 10 |
| Daily, oral, monthly, written examinations and reports | Whiteboard and Data show | Learn about methods of analyzing electrical circuits | | | | Source Transformation | 5 | 11 |
| Daily, oral, monthly, written examinations and reports | Whiteboard and Data show | Learn about methods of analyzing electrical circuits | | | | Superposition Theorem. | 5 | 12 |
| Daily, oral, monthly, written examinations and reports | Whiteboard and Data show | Learn about methods of analyzing electrical circuits | | | | Thevenin’s Theorem | 5 | 13 |
| Daily, oral, monthly, written examinations and reports | Whiteboard and Data show | Learn about methods of analyzing electrical circuits | | | | Norton’s Theorem | 5 | 14 |
| Daily, oral, monthly, written examinations and reports | Whiteboard and Data show | Learn about methods of analyzing electrical circuits | | | | Max. Power Transfer. | 5 | 15 |
| 1. **Course Evaluation** | | | | | | | | |
| Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily preparation, daily, oral, monthly, written exams, reports, etc. | | | | | | | | |
| 1. **Learning and teaching resources** | | | | | | | | |
| * "Fundamentals of Electric Circuits", Charles K. Alexander, Matthew N. O. Sadiku, 4th ed. * "A Textbook of Electrical Technology", B.L. Theraja and A.K. Theraja, 2005 * Boylestad, R. L. " Introductory Circuit Analysis", 4th Edition, Charles E. Merill Publishers. | | | | | Required textbooks (methodology, if any) | | | |
| * Lectures presented by the Lecturer * Books available in the college library | | | | | Main references (sources) | | | |
|  | | | | | Recommended supporting books and references (scientific journals, reports....) | | | |
| Check scientific websites to see the latest developments | | | | | Electronic references, Internet sites | | | |