**Course Description Form**

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| 1. Course Name |
| Digital Electronics |
| 2. Course Code |
| WBM-41-06 |
| 3. Semester/Year |
| Quarterly |
| 4. Date of preparation of this description |
| 19/3/2024 |
| 5. Available attendance forms |
| Weekly (theoretical) |
| 6. Number of credit hours (total) / total number of units |
| 60 Theoretical Hours / 3 Units |
| 7. Course Administrator Name |
| Name: Dr . Haider Mohammed AliEmail: hayder.alghanami@uowa.edu.iq |
| 8. Course Objectives |
| Course Objectives: | • This course description provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the student to achieve, proving whether he has made the most of the available learning opportunities. It must be linked to the program description. |
| 1. Teaching and learning strategies |
| Strategy | The student's ability to analyze, apply and arrange knowledge so that he can impose assumptions and interpretation as well as describe solutions. The ability to learn simple and deep in exploring knowledge and focusing on the application of knowledge to solve existing problems.Discrimination that the test increases the student's motivation towards study and is not a means of punishment for him. |
| **2. Course Structure** |
| **The week** | **Hours** | **Required Learning Outcomes** | **Unit or subject name** | **Learning method** | **Evaluation method** |
| 1-3 | 12 hours | Knowledge of circuit designSpecial ElectronicMUX and PalDUXrepresent the same number in counting systems,(decimal, octal, hexadecimal, binary) as well as converting the number from one counting system to another | Introduction to Digital Electronics; Number Systems and Codes | Lectures / Assignments / Open Discussion / Real-life Examples | Exams / Assignments / Quick Exams / Seminars and Discussions |
| 4-6 | 12 hours | Learn logic gates (truth table, symbol, and action)As well as learning Boolean algebra and DeMorgan's theorem | Boolean Algebra and Logic Gates | Lectures / Assignments / Open Discussion / Real-life ExamplesPractical connectivity | Exams / Assignments / Quick Exams / Seminars and Discussions |
| 7 | 4 hours | Rules of methods of writing logical equations in both forms (SOP, POS) | Rules of methods of writing logical equations in both forms (SOP, POS | Lectures / Assignments / Open Discussion / Real-life ExamplesPractical connectivity | Exams / Assignments / Quick Exams / Seminars and Discussions |
| 8-9 | 8 hours | Karnaugh maps (2-variables, 3-variables, 4- and 5- variablesDon't care | Karnaugh maps (2-variables, 3-variables, 4- and 5- variablesDon't care | Lectures / Assignments / Open Discussion / Real-life ExamplesPractical connectivity | Exams / Assignments / Quick Exams / Seminars and Discussions |
| 10 | 4 hours | Arithmetic operations (adder, parallel binary adder) half and full adder | Arithmetic operations (adder, parallel binary adder) half and full adder | Lectures / Assignments / Open Discussion / Real-life ExamplesPractical connectivity | Exams / Assignments / Quick Exams / Seminars and Discussions |
| 11 | 4 hours | Design of Combinational Logic Circuit | Combinational Logic Circuit | Lectures / Assignments / Open Discussion / Real-life ExamplesPractical connectivity | Exams / Assignments / Quick Exams / Seminars and Discussions |
| 12-14 | 12 | Design of Encoder and Decoder, Multiplexer and Demultiplexer | Encoder and Decoder, Multiplexer and Demultiplexer | Lectures / Assignments / Open Discussion / Real-life ExamplesPractical connectivity | Exams / Assignments / Quick Exams / Seminars and Discussions |
| 15 | 4 | Design Comparator and code conversions | Comparator and code conversions | Lectures / Assignments / Open Discussion / Real-life ExamplesPractical connectivity | Exams / Assignments / Quick Exams / Seminars and Discussions |
| 3. Course Evaluation |
| Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily, oral, monthly, written exams, reports .... etc |
| 4. Learning and Teaching Resources |
| 1- Required textbooks | Digital logic and computer Design by Morris Mano |
| 2- Main references (sources) | Digital Fundamental by Thomas L. Floyd |
| a) Recommended books and references (scientific journals, reports, .....) | Scientific journals in the specialty |
| b) Electronic references, websites, ..... | Websites specialized in studying the material |
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