**Course description form**

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| 1. Course name: Digital Electronics II
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| 1. Course Code: WBM-42-06
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| 1. Semester/year: 2nd/2024
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| 1. Date this description was prepared: 3/20/2024
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| 1. Available attendance forms: Weekly attendance - theoretical hall + practical laboratory
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| 1. Number of study hours (total)/number of units (total):75hours/semester (2Theoretical hours per week + 3 practical hours) / 3 units
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| 1. Name of the course administrator (if more than one name is mentioned)
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| the name: Asst. Lecturer Harith Nawfal Abdali Mohsen Al-MusawiEmail: harith.na@uowa.edu.iq |
| 1. Course objectives
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| * Learn the basics of logic circuits
* Building sequential logic circuits.
* Construct functional tables for all slippers and latches.
* The process of converting between different swings.
* Build different types of counters, synchronous and asynchronous.
 | **Objectives of the study subject** |
| 1. Teaching and learning strategies
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| 1-The methodical book, as well as lectures and solving mathematical problems.2-Scientific library.3- Visual presentation methods (data show) using the PowerPoint program or displaying PDF files to clarify the lecture items, drawings and shapes.4-Useful educational sites on the Internet.5The teacher delivers detailed theoretical lectures, and students participate during the lecture in solving some engineering problems.6- Adopting the homework method to solve the exercises by students. | Teaching and learning strategy |
| 1. Course structure
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| **Evaluation method**  | **Learning method**  | **Required learning outcomes** | **Name of the unit or topic** | **hours** | **the week** |
| Surprise exams and classroom activities | LecturesDATA SHOW | The student understands the topic | Latchs and flip flops, SR FF | 2 theoretical + 3 practical | 1 |
| Surprise exams and classroom activities | LecturesDATA SHOW | The student understands the topic | D FF, JK FF, and T FF, applications | 2 theoretical + 3 practical | 2 |
| aSurprise exams and classroom activities | LecturesDATA SHOW | The student understands the topic | counters, asynchronous counter (eipple counters) up-down counters | 2 theoretical + 3 practical | 3 |
| Surprise exams and classroom activities | LecturesDATA SHOW | The student understands the topic | synchronous counters design, up-down) | 2 theoretical + 3 practical | 4 |
| Surprise exams and classroom activities | LecturesDATA SHOW | The student understands the topic | counters mod-counters, applications | 2 theoretical + 3 practical | 5 |
| Surprise exams and classroom activities | LecturesDATA SHOW | The student understands the topic | , registers, shift register, serial in/serial out, serial in/parallel out, parallel in/parallel out, parallel in /serial out | 2 theoretical + 3 practical | 6 |
| Surprise exams and classroom activities | LecturesDATA SHOW | The student understands the topic | ring counter | 2 theoretical + 3 practical | 7 |
| Surprise exams and classroom activities | LecturesDATA SHOW | The student understands the topic | johanson counters, applications | 2 theoretical + 3 practical | 8 |
| Surprise exams and classroom activities | LecturesDATA SHOW | The student understands the topic | square wave generators | 2 theoretical + 3 practical | 9 |
| Surprise exams and classroom activities | LecturesDATA SHOW | The student understands the topic | Shift register | 2 theoretical + 3 practical | 10 |
| Surprise exams and classroom activities | LecturesDATA SHOW | The student understands the topic | Multiviberatorone shot | 2 theoretical + 3 practical | 11 |
| Surprise exams and classroom activities | LecturesDATA SHOW | The student understands the topic | A/D and D/A | 2 theoretical + 3 practical | 12 |
| Surprise exams and classroom activities | LecturesDATA SHOW | The student understands the topic | memory types, RAM | 2 theoretical + 3 practical | 13 |
| Surprise exams and classroom activities | LecturesDATA SHOW | The student understands the topic | ROM, flash RAM. | 2 theoretical + 3 practical | 14 |
| Surprise exams and classroom activities | LecturesDATA SHOW | The student understands the topic | Application of digital electronics | 2 theoretical + 3 practical | 15 |
| 1. Course evaluation
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| 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.* Attendance + cup = 10%
* Monthly exam = 30%
* Practical laboratory = 10%
* Final exam = 50%
* Final total = 100%
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| 1. Learning and teaching resources
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| 1- Required prescribed books | “Digital Design”, FIFTH EDITION, M. Morris Mano & Michael D. Ciletti, 2013, Pearson Education, ISBN-13: 978-0-13-277420-8. |
| 2- Main references (sources) | * ***“Digital Fundamentals”***, Eleventh Edition, Thomas L. Floyd, 2015, Pearson Education, ISBN 13: 978-1-292-07598-3.
* ***“Digital Electronics: Principles, Devices and Applications”***, Anil K. Maini, 2007, John Wiley & Sons, Ltd. ISBN: 978-0-470-03214-5.
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| Floyd “DIGITAL FUNDAMENTALS” | Recommended supporting books and references (scientific journals,Reports......) |
| WWW.IEEE.com | Electronic references, Internet sites |

