



Jordan University of Science and Technology
Faculty of Computer & Information Technology
Computer Engineering Department

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| CPE231 Digital Logic Design |
| Second Semester 2022-2023 |

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| Course Catalog |
| 3 Credit Hours. Binary systems; Boolean algebra and logic gates; Simplification of Boolean functions; Combinational logic; Design of combinational logic with MSI, LSI, programmable logic devices, and hierarchical logic design; Sequential logic; Registers, counters, and memory units; Computer-aided design and logic simulation. |

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| Text Book | |
| Title | Digital Design |
| Author(s) | M. Morris Mano and Michael D. Ciletti |
| Edition | 5th Edition |
| Short Name | Ref #1 |
| Other Information | |

Course References

| Short name | Book name | Author(s) | Edition | Other Information |
|------------|--|-----------------|-------------|-------------------|
| Ref #2 | Digital Design: Principles and Practices | John F. Wakerly | 4th Edition | |

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| Instructor | |
| Name | Dr. Taisir Eldos |
| Office Location | C5 L2 |
| Office Hours | Mon : 08:30 - 10:00 Tue : 08:30 - 10:30 Wed : 08:30 - 10:00 Thu : 08:30 - 10:30 |
| Email | eldos@just.edu.jo |

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| Instructor | |
| Name | Dr. ANAS BSOU |

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| Office Location | A1 L3 |
| Office Hours | |
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| Instructor | |
|-----------------|---|
| Name | Mr. Mohammed Hammouri |
| Office Location | C5 L2 |
| Office Hours | Sun : 10:30 - 11:30 Mon : 14:00 - 14:30 Tue : 10:30 - 11:30 Tue : 12:30 - 14:30 Thu : 10:30 - 12:00 |
| Email | hammori@just.edu.jo |

| Instructor | |
|-----------------|--|
| Name | Prof. Mohammad Fraiwan |
| Office Location | M2 L2 |
| Office Hours | Sun : 08:00 - 10:00 Mon : 08:00 - 09:45 Tue : 08:00 - 10:00 Wed : 08:00 - 09:00 |
| Email | mafraiwan@just.edu.jo |

| Class Schedule & Room |
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| <p>Section 1: Lecture Time: Sun, Tue, Thu : 09:30 - 10:30 Room: C2010</p> <p>Section 2: Lecture Time: Sun, Tue, Thu : 10:30 - 11:30 Room: A3128</p> <p>Section 3: Lecture Time: Sun, Tue, Thu : 11:30 - 12:30 Room: A3128</p> <p>Section 4: Lecture Time: Mon, Wed : 11:30 - 13:00 Room: A3132</p> <p>Section 5: Lecture Time: Sun, Tue, Thu : 09:30 - 10:30 Room: A2125</p> |

| Prerequisites | | |
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| Line Number | Course Name | Prerequisite Type |
| 1761120 | SE112 Introduction To Object- Oriented Programming | Prerequisite / Study |

| Tentative List of Topics Covered | | |
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| Weeks | Topic | References |
| Weeks 1, 2 | Digital systems, number systems, codes, conversions | Ch #1 From Ref #1 |
| Weeks 3, 4 | Boolean algebra: axioms, theorems, functions, conversions | Ch #2 From Ref #1 |
| Weeks 5, 6 | Gate level minimization methods | Ch #3 From Ref #1 |
| Weeks 7, 8, 9 | Combinational logic: analysis and design | Ch #4 From Ref #1 |
| Weeks 10, 11, 12 | Sequential logic: flip-flops, circuit analysis and design | Ch #5 From Ref #1 |
| Weeks 13, 14 | Sequential logic applications: registers and counters | Ch #6 From Ref #1 |
| Week 15 | Memory and programmable logic devices | Ch #7 From Ref #1 |

| Mapping of Course Outcomes to Program Student Outcomes | Course Outcome Weight (Out of 100%) | Assessment method |
|---|-------------------------------------|-------------------|
| Ability to work with different number systems; representation, conversions, and arithmetic. [1SO1] | 20% | |
| An ability to use switching algebra theorems to solve problems. [1SO1] | 10% | |
| An ability to use various techniques to optimize logic realization. [1SO1, 1SO2, 1SO6] | 20% | |
| An ability to design components for combinational and sequential logic circuits; adder/subtractor, multiplier, magnitude comparator, decoders/encoders, multiplexer/demultiplexer, latch, flip-flop. [1SO1, 1SO2, 1SO6] | 30% | |
| An ability to analyze and design combinational and sequential logic circuits for various applications; registers, counter, etc. [1SO1, 1SO2, 1SO6] | 20% | |

| Relationship to Program Student Outcomes (Out of 100%) | | | | | | | | | | | | | | | | | |
|--|---|---|---|---|---|---|---|---|---|---|-------|-------|-----|-----|-----|-------|-----|
| A | B | C | D | E | F | G | H | I | J | K | SO1 | SO2 | SO3 | SO4 | SO5 | SO6 | SO7 |
| | | | | | | | | | | | 53.33 | 23.33 | | | | 23.33 | |

| Evaluation | |
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| Assessment Tool | Weight |
| First Exam | 25% |
| Second Exam | 25% |

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| Final Exam | 50% |
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| Policy | |
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| Attendance | Attendance will be recorded at the beginning of each class, and missing 20% of the classes results in automatic dismissal (No excuses). If a student misses a class, it is his sole responsibility to catchup. |
| Exams | No books or notes are allowed in the exams or quizzes. The exams and quizzes format may include multiple choice, but the most common is problem solving, analysis and design. |
| Makeups | Exam makeup requires online application within two days of the announced date, pending formal approval, makeups are arranged by the faculty for all courses in one day, typically one week after the exams period end. |
| Cheating | Copying assignments and cheating by any means in the exams and quizzes results in sever penalty . |

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