**COURSE SPECIFICATION**

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| This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the program specification. |

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| University of Baghdad | 1. Teaching Institution |
| College of Engineering, Electrical Engineering Department | 2. University Department/Centre |
| Digital Systems Design | 3. Course title/code |
| Electrical Engineering | 4. Program(s) to which it contributes |
| Internal | 5. Modes of Attendance offered |
| Fourth Year Class | 6. Semester/Year |
| 90 | 7. Number of hours tuition (total) |
| 2012 | 8. Date of production/revision of this specification |
| 9. Aims of the Course | |
| The aim of the course is to teach those methods of designing logical circuits which have evolved as useful and practical techniques. | |

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| 10· Learning Outcomes, Teaching ,Learning and Assessment Method |
| 1. Knowledge and Understanding   A1. Understanding the principles and making design of ADC & DAC circuits.  A2. Designing sequence generators with applications.  A3. Making analysis & design for synchronous and asynchronous state machines  A4. Understanding implementation of semiconductor memory circuits and PLDs  A5. Understanding principles and characteristics of different logic families.  A6. Hardware designing of microcomputers. |
| B. Subject-specific skills  B1. Developing design methods for digital systems.  B2. Deciding which type of logic families is proper for specific digital systems design.  B3. Making oral scientific presentations. |
| Teaching and Learning Methods |
| Lecturing and giving examples. |
| Assessment methods |
| Exams |
| C. Thinking Skills  C1. Being able to form personal opinions about issues through critical reading and listening  C2. Arguing for and defending a scientific position in a clear and structured way using academic sources, through writing and speaking |
| Teaching and Learning Methods |
| Lecturing, class discussions and home works. |
| Assessment methods |
| Exams that involve problem-solving skills and critical thinking skills |

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| D. General and Transferable Skills (other skills relevant to employability and personal development)  D1. Team work.  D2. Effective communication with specialists in digital systems design field. |

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| 11. Course Structure | | | | | |
| Assessment Method | Teaching  Method | Unit/Module or Topic Title | ILOs | Hours per Week | Week |
| Exam | Lecturing, Discussions & Home Works | ADC & DAC Circuits | A+B+C+D | 3 | 1 - 4 |
| Exam | Lecturing, Discussions & Home Works | Sequence Generators | A+B+C+D | 3 | 5 - 6 |
| Exam | Lecturing, Discussions & Home Works | Analysis & Design of Synchronous State Machines | A+B+C+D | 3 | 7 - 11 |
| Exam | Lecturing, Discussions & Home Works | Analysis & Design of Asynchronous State Machines | A+B+C+D | 3 | 12 - 16 |
|  |  | Mid - Year Break |  |  | 17 - 18 |
| Exam | Lecturing, Discussions & Home Works | Semiconductor Memory Circuits | A+B+C+D | 3 | 19 - 22 |
| Exam | Lecturing, Discussions & Home Works | Programmable Logic Devices | A+B+C+D | 3 | 23 - 26 |
| Exam | Lecturing, Discussions & Home Works | Microcomputers Hardware Design | A+B+C+D | 3 | 27 - 28 |
| Exam | Lecturing, Discussions & Home Works | Logic Families | A+B+C+D | 3 | 29 - 31 |
|  |  | Final Exam |  | 3 | 32 |

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| 12. Infrastructure | |
| The text book used to teach this course is:  M. Morris Mano, “ Digital Design”, 3rd edition, Prentice - Hall, Inc., 2002.  As well as the following recommended references:   * M. Morris Mano and C. R. Kime, “Logic and Computer design fundamentals”. * V. G. Oklobdzija, “Digital Design and Fabrication”. * P. Horowitz and W. Hill, “The Art of Electronics”. | Required reading:  · CORE TEXTS  · COURSE MATERIALS  · OTHER |
| Internet links related to the topics of the course. | Special requirements (include for example workshops, periodicals, IT software, websites) |
| None | Community-based facilities  (include for example, guest  Lectures , internship , field studies) |

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| 13. Admissions | |
| --------- | Pre-requisites |
| 20 | Minimum number of students |
| 50 | Maximum number of students |