**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 programme specification. |

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| University of Baghdad | 1. Teaching Institution |
| College of Engineering/ Electronics and Communications Department | 2. University Department/Centre |
| Computer architecture/ 207 ECA | 3. Course title/code |
| DSD, Embedded Systems | 4. Programme(s) to which it contributes |
| In class face-to-face mode | 5. Modes of Attendance offered |
| 1st-2nd / 2015-2016 | 6. Semester/Year |
| 4 hrs per week/ 120 hrs total | 7. Number of hours tuition (total) |
| 3/3/2016 | 8. Date of production/revision of this specification |
| 9. Aims of the Course | |
| Provide the student with information on the microprocessor to knuckle machine language and Assembly issues. And link the microprocessor with memory and external and internal devices | |
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| 10· Learning Outcomes, Teaching ,Learning and Assessment Methode |
| 1. Knowledge and Understanding   A1. Basic Concepts of microprocessor  A2.  A3.  A4.  A5.  A6 . |
| B. Subject-specific skills  B1. Programming written in low level language  B2. Interfacing microprocessor with outside world  B3. |
| Teaching and Learning Methods |
| 1- Lectures.  2- Tutorials.  3- Homework and Assignments.  4- Tests and Exams.  5- In-Class Questions and Discussions. |
| Assessment methods |
| 1. Quizzes: 10% 2. 1st term exam: 10% 3. 2nd term exam: 10% 4. Lab exam 30% 5. Final exam: 40% |
| C. Thinking Skills  C1.  C2.  C3.  C4. |
| Teaching and Learning Methods |
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| Assessment methods |
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| D. General and Transferable Skills (other skills relevant to employability and personal development)  D1.  D2.  D3.  D4. |

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| 11. Course Structure | | | | | | |
| Assessment Method | | Teaching  Method | Unit/Module or Topic Title | ILOs | Hours | Week |
| Quiz/Exam | Lectures and lab | | General architecture of computer |  | 4 | 1 |
| Quiz/Exam |  | | General architecture of A microcomputer |  | 4 | 2 |
| Quiz/Exam | Lectures and lab | | Data types,Types of Microprocessors,Number Systems |  | 4 | 3 |
| Quiz/Exam |  | | Computer languages  Machine language, Assembly language,high- level language |  | 4 | 4 |
| Quiz/Exam | Lectures and lab | | Overview of 8085 microprocessor  main features, programmable registers, |  | 4 | 5 |
| Quiz/Exam | Lectures and lab | | Accumulator, general –purpose registers, Flags, Program Counter, Stack Pointer |  | 4 | 6 |
| Quiz/Exam | Lectures and lab | | 8086 microprocessor  Features of 8086 microprocessor |  | 4 | 7 |
| Quiz/Exam | Lectures and lab | | Architecture of 8086 microprocessor  Bus Interface Unit [BIU],Execution Unit [EU] |  | 4 | 8 |
| Quiz/Exam | Lectures and lab | | Register Organization, General Purpose Registers, Segment Registers |  | 4 | 9 |
| Quiz/Exam | Lectures and lab | | Pointers and Index Registers, Flag Register, Bus Operation |  | 4 | 10 |
| Quiz/Exam | Lectures and lab | | Memory Segmentation, Generation of 20-bit Address |  | 4 | 11 |
| Quiz/Exam | Lectures and lab | | 8086 instruction set and Assembly language program |  | 4 | 12 |
| Quiz/Exam | Lectures and lab | | Addressing modes |  | 4 | 13 |
| Quiz/Exam | Lectures and lab | | 8086 INSTRUCTION |  | 4 | 14 |
| Quiz/Exam | Lectures and lab | | Data transfer instructions |  | 4 | 15 |
| Quiz/Exam | Lectures and lab | | Arithmetic instructions |  | 4 | 16 |
| Quiz/Exam | Lectures and lab | | Logic instructions |  | 4 | 17 |
| Quiz/Exam | Lectures and lab | | Shift instructions |  | 4 | 18 |
| Quiz/Exam | Lectures and lab | | Flag-control instructions |  | 4 | 19 |
| Quiz/Exam | Lectures and lab | | compare instruction |  | 4 | 20 |
| Quiz/Exam | Lectures and lab | | control flow and jump instructions |  | 4 | 21 |
| Quiz/Exam | Lectures and lab | | subroutines instruction |  | 4 | 22 |
| Quiz/Exam | Lectures and lab | | loops instructions |  | 4 | 23 |
| Quiz/Exam | Lectures and lab | | String instructions |  | 4 | 24 |
| Quiz/Exam | Lectures and lab | | 8086 micro processing unit  Minimum – mode and maximum- mode system |  | 4 | 25 |
| Quiz/Exam | Lectures and lab | | Minimum – mode interface signal |  | 4 | 26 |
| Quiz/Exam | Lectures and lab | | Maximum – mode interface signal |  | 4 | 27 |
| Quiz/Exam | Lectures and lab | | System clock |  | 4 | 28 |
| Quiz/Exam | Lectures and lab | | Bus cycle and time status |  | 4 | 29 |
| Quiz/Exam | Lectures and lab | | Memory interface circuits |  | 4 | 30 |
| Quiz/Exam | Lectures and lab | | Types of input/output |  | 4 | 31 |
| Quiz/Exam | Lectures and lab | | Input/output data transfers, instruction |  | 4 | 32 |

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| 12. Infrastructure | |
| The 8088 and 8086 microprocessors programming, interfacing, software, hardware, and applications  Walter A. Triebel, Avtar Singh | Required reading:  · CORE TEXTS  · COURSE MATERIALS  · OTHER |
| None | 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 | |
| According to ministry requirements | Pre-requisites |
| 10 | Minimum number of students |
| 50 | Maximum number of students |