**COURSE SPECIFICATION**

|  |
| --- |
| 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. |

|  |  |
| --- | --- |
| Baghdad University | 1. Teaching Institution |
| College of Engineering/Department of Electrical Engineering | 2. University Department/Centre |
| Electronics II | 3. Course title/code |
| Electrical Engineering | 4. Programme(s) to which it contributes |
| Internal | 5. Modes of Attendance offered |
| Third Year Class | 6. Semester/Year |
| 60 | 7. Number of hours tuition (total) |
| 2010 | 8. Date of production/revision of this specification |
| 9. Aims of the Course | |
| To understand, analyze and design the analog electronic circuit that specified in the integrated circuit | |
|  | |
|  | |

|  |
| --- |
| 10· Learning Outcomes, Teaching ,Learning and Assessment Method |
| 1. Knowledge and Understanding   A1. Understanding academic texts and try to solve the problems in the end of each chapter.  A2. learns how to reflect the theoretical circuit design to be practical circuit  A3. Finding and understand information about electronic circuit and the advantages and disadvantages of it. |
| B. Subject-specific skills  B1. Reading some useful papers related to electronic circuit design  B2. Explore the web pages that concerned on electronic circuit  B3. Reading an arbitrary device manual to explore the electronic circuit in the device.  B4. Making an oral presentation |
| Teaching and Learning Methods |
| Lecturing and Exercises |
| Assessment methods |
| Exams |
| C. Thinking Skills  C1. Being able to form personal opinions about issues through attempting construct the electronic circuit |
| Teaching and Learning Methods |
| Lecturing & Class discussions |
| Assessment methods |
| Exams that involve problem-solving skills and critical thinking skills |

|  |
| --- |
| D. General and Transferable Skills (other skills relevant to employability and personal development)  D1.Effective communication in the design an applicable electronic circuit  D2. Team work |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 11. Course Structure | | | | | |
| Assessment Method | Teaching  Method | Unit/Module or Topic Title | ILOs | Hours | Week |
| Exam | Lecturing, Discussions & Exercises | Differential amplifier using BJT and DC Transfer C/Cs |  | 2 | 1 |
| Exam | Lecturing, Discussions & Exercises | Difference mode input dynamic range |  | 2 | 2 |
| Exam | Lecturing, Discussions & Exercises | Small signal analysis,  Differential mode gain and Common mode gain |  | 2 | 3 |
| Exam | Lecturing, Discussions & Exercises | Common mode rejection ratio (CMRR), Difference mode and common mode input impedances |  | 2 | 4 |
| Exam | Lecturing, Discussions & Exercises | Differential amplifier using FET |  | 2 | 5 |
| Exam | Lecturing, Discussions & Exercises | DC Transfer C/Cs and Difference mode input dynamic range |  | 2 | 6 |
|  |  | New Year Holiday |  |  | 7 |
|  |  | Exam (1) |  | 2 | 8 |
| Exam | Lecturing, Discussions & Exercises | Feedback Amplifier,  Classifications of amplifiers and The feedback concept |  | 2 | 9 |
| Exam | Lecturing, Discussions & Exercises | The transfer ratio or gain of feedback amplifier andNegative feedback amplifier |  | 2 | 10 |
| Exam | Lecturing, Discussions & Exercises | Feedback amplifier topologies and General characteristics of –ve feedback amplifier |  | 2 | 11 |
| Exam | Lecturing, Discussions & Exercises | Output stage |  | 2 | 12 |
|  |  | Mid-Year Break |  |  | 13 |
|  |  | Exam (2) |  | 2 | 14 |
| Exam | Lecturing, Discussions & Exercises | Class A output stage |  | 2 | 15 |
| Exam | Lecturing, Discussions & Exercises | Transfer characteristics for small and large loads |  | 2 | 16 |
| Exam | Lecturing, Discussions & Exercises | Class B and AB push pull output stages |  | 2 | 17 |
|  |  | Exam (3) |  | 2 | 18 |
| Exam | Lecturing, Discussions & Exercises | Operational amplifier architecture and Basic stages description |  | 2 | 19 |
| Exam | Lecturing, Discussions & Exercises | The analysis of 741 op. amp |  | 2 | 20 |
| Exam | Lecturing, Discussions & Exercises | DC and AC analysis |  | 2 | 21 |
| Exam | Lecturing, Discussions & Exercises | Frequency response and  The general voltage gain function |  | 2 | 22 |
|  |  | Exam (4) |  | 2 | 23 |
| Exam | Lecturing, Discussions & Exercises | Low and high frequency response |  | 2 | 24 |
| Exam | Lecturing, Discussions & Exercises | Determining the -3dB upper frequency |  | 2 | 25 |
| Exam | Lecturing, Discussions & Exercises | Op-Amp applications,  Linear applications and  Non linear applications |  | 2 | 26 |
|  |  | Linear oscillators |  | 2 | 27 |
|  |  | Final Exam |  | 3 | 28 |

|  |  |
| --- | --- |
| 12. Infrastructure | |
| *Analysis and Design of Analog Integrated Circuits” By: Paul R. Gray* | Required reading:  · CORE TEXTS  · COURSE MATERIALS  · OTHER |
| Internet links related to the topics discussed in the book and class, learn the simulators that have ability to construct electronic circuit | Special requirements (include for example workshops, periodicals, IT software, websites) |
| None | Community-based facilities  (include for example, guest  Lectures , internship , field studies) |

|  |  |
| --- | --- |
| 13. Admissions | |
| ---------- | Pre-requisites |
| 25 | Minimum number of students |
| 30 | Maximum number of students |