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|  **TEMPLATE FOR COURSE SPECIFICATION**

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| HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW |

**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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| Collage of EngineeringUniversity of Baghdad | ***1. Teaching Institution*** |
| Electrical Engineering Department(EED) | ***2. University Department/Centre*** |
| Electrical Circuits /EE207The course is designed for university students and to get more knowledge about electric circuits that have special cases and more practical situations. The course has 30 lessons. Each lesson is designed to learn, develop and analyze new forms of electric circuits. This course introduces the description these topics:Magnetically Coupled Circuits, Mutual Inductance, First-Order transient Circuits, Second-Order transient Circuits, Operational Amplifiers, Op Amp Circuit Analysis, Active Filters, Locus Diagram. Poly-phase circuits, Two Port Networks, Interconnected Two Port Network, Laplace Transform in Circuit Analysis, Application of Laplace Transform, Bode Plot and frequency response, Routh’s Criterion and Stability.The course is taught through 4 hrs per week , 3 theories and 1 tutorial. | ***3. Course title/code & Description*** |
| Electrical Engineering (EE) | ***4. Programme(s) to which it Contributes*** |
| Annual system ;there is only one mode of delivery , which is a "Day Program". The students are full time students , and on campus .They attend full day program in face-to-face mode. The academic year is composed of 30- week regular subjects. | ***5. Modes of Attendance offered*** |
| 1st & 2st / Academic Year 2014-2015 | ***6. Semester/Year*** |
| 120 hrs. / 4 hrs. per week | ***7. Number of hours tuition (total)*** |
| April -18 /2015 | ***8. Date of production/revision of this specification***  |
| ***9. Aims of the Course*** |
| The course is designed for university students and to get more knowledge about electric circuits that have special cases and more practical situations. The course has 30 lessons. Each lesson is designed to learn, develop and analyze new forms of electric circuits. 1. How to relate the skills and concepts learned from fundamentals of electrical engineering to understand electrical circuits.
2. How to use the learned skills to understand, analyzed, and design electrical circuits.
3. Representation of an Introduction to complicated electrical circuits.
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| ***10·*** ***Learning Outcomes***  |
| Upon Completion of this course the students will acquire the following skills:1. An ability to read and comprehend electrical circuits at an appropriate level2. An ability both to follow and correctly to analyze the circuits of appropriate degrees of complexity.3. An understanding of electrical circuits equations, and an ability to use it correctly.4. An appreciation of the important connection between the ideas in the electrical circuits theories and the practical applications.  |
|  ***11.*** ***Teaching and Learning Methods*** |
| 13.Lectures.14.Tutorials.15.Homework and Assignments.16.Tests and Exams.17.In – Class Questions and Discussions.18. Connection between Theory and Application.19. Extracurricular Activities.20. Seminars.21.In-and Out-Class oral conservations.22. Reports, Presentations, and Posters. |
|  ***12. Assessment Methods*** 1. Examinations, Tests ,and Quizzes.2. Extracurricular Activities.3. Students Engagement during Lectures.4. Responses Obtained from Students Questionnaire about Curriculum and Faculty Member (Instructor). |
| ***13. Grading Policy***1. Quizzes:- There will be at least seven closed books and notes quizzes during the academic year.-The quizzes will count 25% of the total course grade.2. Oral assessment:- The students are encouraged to participate their ideas to solve the problems during the lecture.- The Seminar will count 5% of the total course.3. Final Exam:- The final exam will be comprehensive, closed books and notes, and will take three hours from 9:00 – 12:00 AM.- The final exam will count 70% of the total course grade.**Grading Units**

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| Quizzes (1st and 2nd Semester) | 25% |
| Seminar  | 5% |
| Final Exam | 70% |
| Total | 100% |

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| ***14. Course Structure*** |
| Assessment Method | Teaching Method | Unit/Module orTopic Title | Los(Article 10) | Hours | Week |
| 1-4 of article (12) | 1-12 of article (11) | Self-Mutual Inductance andPoly-phase circuits, Phase Sequence | a,1,m,n,o.p,q,r | 43 the.1 tut. | 1 |
| 1-4 of article (12) | 1-12 of article (11) | Mutual InductanceAnd Star or Way (Y) Connection | a,1,m,n,o.p,q,r | 43 the.1 tut | 2 |
| 1-4 of article (12) | 1-12 of article (11) | Polarity of mutually induced voltage andDelta (∆) or Mesh Connection | b,1,m,n,o.p,q,r | 43 the.1 tut | 3 |
| 1-4 of article (12) | 1-12 of article (11) | Inductor in series and in Parallel andBalanced Three-Phase System | b,1,m,n,o.p,q,r | 43 the.1 tut | 4 |
| 1-4 of article (12) | 1-12 of article (11) | First-order circuits andUnbalanced Three-Phase System | b,1,m,n,o.p,q,r | 43 the.1 tut | 5 |
| 1-4 of article (12) | 1-12 of article (11) | The Source-free RC Circuit and Balanced ( $^{Y}/\_{∆} $ )and ( $^{∆}/\_{Y}$ ) Conversions | b,1,m,n,o.p,q,r | 43 the.1 tut | 6 |
| 1-4 of article (12) | 1-12 of article (11) | The Source-free RL Circuit and Parallel Loads | b,1,m,n,o.p,q,r | 43 the.1 tut | 7 |
| 1-4 of article (12) | 1-12 of article (11) | Singularity Functions and Power Measurement in Three-Phase circuits | b,1,m,n,o.p,q,r | 43 the.1 tut. | 8 |
| 1-4 of article (12) | 1-12 of article (11) | Step Response of an RC Circuit and One and Two Wattmeter Method-Balanced Loads | b,1,m,n,o.p,q,r | 43 the.1 tut. | 9 |
| 1-4 of article (12) | 1-12 of article (11) | Step Response of an RL Circuit and Two Port Networks, Terminal Equations | b,1,m,n,o.p,q,r | 43 the.1 tut. | 10 |
| 1-4 of article (12) | 1-12 of ar ticle (11) | Second-order circuits and Two Port Parameters | c,1,m,n,o.p,q,r | 43 the.1 tut. | 11 |
| 1-4 of article (12) | 1-12 of article (11) | Spring Break | c,1,m,n,o.p,q,r | 43 the.1 tut. | 12 |
| 1-4 of article (12) | 1-12 of article (11) | Spring Break | c,1,m,n,o.p,q,r | 43 the.1 tut. | 13 |
| 1-4 of article (12) | 1-12 of article (11) | The Source-Free Parallel RLC Circuit and Cascade Interconnection | c,1,m,n,o.p,q,r | 43 the.1 tut. | 14 |
| 1-4 of article (12) | 1-12 of article (11) | Step Response of a Series RLC Circuit andSeries Interconnection, Parallel Interconnection | c,1,m,n,o.p,q,r | 43 the.1 tut. | 15 |
| 1-4 of article (12) | 1-12 of article (11) | Step Response of a Parallel RLC Circuit and Series-Parallel Interconnection | d,1,m,n,o.p,q,r | 43 the.1 tut. | 16 |
| 1-4 of article (12) | 1-12 of article (11) | General Second-Order Circuits and Parallel-Series Interconnection | d,1,m,n,o.p,q,r | 43 the.1 tut. | 17 |
| 1-4 of article (12) | 1-12 of article (11) | Operational Amplifiers and Laplace Transform in Circuit Analysis | d,1,m,n,o.p,q,r | 43 the.1 tut. | 18 |
| 1-4 of article (12) | 1-12 of article (11) | Ideal Op Amp and Circuit Elements in the S-Domain | e,1,m,n,o.p,q,r | 43 the.1 tut. | 19 |
| 1-4 of article (12) | 1-12 of article (11) | Inverting Amplifier andThe Network Function and Laplace Transform  | e,1,m,n,o.p,q,r | 43 the.1 tut. | 20 |
| 1-4 of article (12) | 1-12 of article (11) | Noninverting Amplifier and Bode Plot | f,g,1,m,n,o.p,q,r | 43 the.1 tut. | 21 |
| 1-4 of article (12) | 1-12 of article (11) | Summing Amplifier and K-Gain Factor  | h,i,1,m,n,o.p,q,r | 43 the.1 tut. | 22 |
| 1-4 of article (12) | 1-12 of article (11) | Difference Amplifier and $(jw)^{\pm }$ Factor (Integral and Derivative Factor) | H,I,1,m,n,o.p,q,r | 43 the.1 tut. | 23 |
| 1-4 of article (12) | 1-12 of article (11) | Cascaded Op Amp Circuits and $(jw+1)^{\pm }$ Factor (First Order Factor) | H,i,1,m,n,o.p,q,r | 43 the.1 tut. | 24 |
| 1-4 of article (12) | 1-12 of article (11) | First-Order Lowpass Filter and Quadratic Factor | j,1,m,n,o.p,q,r | 43 the.1 tut. | 25 |
| 1-4 of article (12) | 1-12 of article (11) | First-Order Highpass Filter and Frequency Response | j,1,m,n,o.p,q,r | 43 the.1 tut. | 26 |
| 1-4 of article (12) | 1-12 of article (11) | Bandpass Filter and Routh’s Criterion and Stability, Stable System | j,1,m,n,o.p,q,r | 43 the.1 tut. | 27 |
| 1-4 of article (12) | 1-12 of article (11) | Bandreject (or Notch) Filter and Unstable System | k,1,m,n,o.p,q,r | 43 the.1 tut. | 28 |
| 1-4 of article (12) | 1-12 of article (11) | Magnitude Scaling and frequency scaling , and Determination the Number of Roots  | k,1,m,n,o.p,q,r | 43 the.1 tut. | 29 |
| 1-4 of article (12) | 1-12 of article (11) | Locus diagram and Determination the Value of (K) that Make the System Stable | k,1,m,n,o.p,q,r | 43 the.1 tut. | 30 |

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| ***15. Infrastructure*** |
| **Textbook**The book we used to teach Electrical circuit to second year students in the Electrical Engineering Department is *Fundamentals of Electric Circuits* by Charles K. Alexander & Mathew N.O. Sadiku (third edition).**References**we used references such as *Electric Circuits* (8th Edition) by James W. Nilson, *Introductory Circuit Analysis* by Boylestad, *Electrical Technology* by Hughes and *Introductions to Electric Circuits* (6th Edition) by R.C. Dorf & J. A. Svoboda, in addition to internet links related to the topics discussed in the book and class.  | Required reading:· CORE TEXTS· COURSE MATERIALS· OTHER |
| * Available websites related to the subject.
* Extracurricular activities.
 | Special requirements (include for example workshops, periodicals, IT software, websites) |
| * Field and scientific visits.
* Extra lectures by foreign guest lecturers.
 | Community-based facilities(include for example, guestLectures , internship , field studies) |
| ***16. Admissions*** |
| EE107 Course | Pre-requisites |
| / | Minimum number of students |
| 60 | Maximum number of students |
| **1 INSTRUCTOR**Lecturer (MSc.): Mohanad A. JOODI Electrical Engineering DepartmentCollage of EngineeringUniversity of Baghdad Tel: 00964-7815590669E-mail: eng\_muhanad73@yahoo.com**2 INSTRUCTOR**Lecturer (MSc.): Zainab I. Abood AL-rifaeeElectrical Engineering DepartmentCollage of EngineeringUniversity of BaghdadTel: 00964-7709609107E-mail: zainab2012254@yahoo.com  | ***17. Course Instructors*** |

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